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The Society wishes it to be understood that responsibility for opinions and material contained in articles, notes and reviews is that of the authors, to whom any resulting correspondence should be addressed.

THE GREAT HOLDERNESS HARPOON CONTROVERSY[1]

By Bryan Sitch and Roger Jacobi

During the 1920s two archaeological specimens in a private museum in Holderness caused one of the most acrimonious disputes in East Yorkshire archaeology. The Director of Hull Museums, Thomas Sheppard, and an amateur archaeologist from Sheffield, A. Leslie Armstrong, disagreed strongly over the authenticity of two notched bone points in the possession of the Morfitt family of Atwick. Two committees of enquiry met to consider whether the points were authentic but the outcomes were inconclusive or ambiguous.

The argument raged throughout the 1920s and into the 1930s. Nowadays the bone points are generally regarded as genuine. To the writers' knowledge, however, a detailed study of the controversy has never before been attempted and now that more biographical information is available it may be possible to shed more light on the controversy. The case against the so-called Holderness harpoons will be examined in detail, paying particular attention to the questions raised by Thomas Sheppard.

The origins of the controversy date back to the early years of the twentieth century. The background has been explored in other publications (Sitch 1988, 1991, 1993) and it will suffice here to summarise relevant details. The Morfitts moved to the village of Atwick in 1890, after William (1831–1923), the head of the family, retired from his business as baker and supplier of ships' provisions in the port of Goole. That his business had been a success is clear from the fact that he was able to bring his sons Beaumont (1856–1929) and Aaron (1863–1928) and daughters Margaret (1855–1905) and Charlotta[2] (1865–1914) to share his retirement. For much of the next 30 years, the family spent its leisure time beachcombing and collecting archaeological, geological and natural history specimens for the 'East Coast Museum of Antiquities' at Charlotte's Cottage in Atwick.

Coastal erosion in Holderness regularly reveals large numbers of archaeological sites and antiquities, and geological specimens such as fossils. The soft boulder clay of the Skipsea till is eroded at the rate of two metres or more per annum, making Holderness one of the fastest receding coastlines in North-West Europe (Kent 1980: 126). This coastal erosion also disturbs the sites of former meres or lakes which were originally created about 13,000 years ago, at the end of the last ice age, when glacial melt-waters collected in depressions in the boulder clay (Sheppard 1957). There were once hundreds of meres in Holderness but over the centuries most have disappeared because of siltation, reclamation for agricultural use by man, or truncation by coastal erosion. Today only Hornsea Mere survives but the locations of many others are known from the range of evidence collected by June Sheppard (*ibid.*).

During the early 1900s two notched bone points were found in the 'extinct' mere deposits at Skipsea Withow and close to the mere at Hornsea (Figs 2–3). They were

1. At the time of the controversy the artefacts in question were identified as harpoons but current practice has been followed in referring to them as bone *points* (Wymer 1991: 30).

2. Christened Charlotta, William Morfitt's youngest daughter is most often referred to as Charlotte (hence Charlotte's Cottage) or Lottie.

Fig. 1. Skipsea Withow 'extinct' mere deposits at the turn of the century. The man standing on the right may be Beaumont Morfitt (Sheppard 1903b).

acquired by William Morfitt who displayed them in his museum at Charlotte's Cottage in Atwick. The specimens were not published at the time of discovery, although they were seen by a number of prominent archaeologists and museum curators such as Canon William Greenwell (1820–1918), Sir William Boyd-Dawkins (1837–1929), Elijah Howarth (d. 1938) of the Sheffield City Museum and Thomas Sheppard (1876–1945) of the Hull Municipal Museum. Their significance only became apparent some twenty years later (Breuil 1922).[3] In September 1922, the Sheffield amateur archaeologist, A. Leslie Armstrong (d. 1958), featured the bone points in a paper given to the meeting of Section H of the British Association for the Advancement of Science in Hull (Armstrong 1922). Armstrong compared the bone points from Holderness with similar examples from a site at Maglemose in Denmark and concluded that the Morfitts' specimens were also of Maglemosian or mesolithic date, i.e. approximately ten thousand years old (*ibid.*). He argued that they were some of the first archaeological evidence for Maglemosian hunter-gatherers not only in the region but in the country as a whole.

Thomas Sheppard, Director of Hull Museums, attended the British Association meeting and caused a sensation by suggesting that the bone points were no older than the speaker (*Eastern Morning News* 14.9.1922, *Yorkshire Post* 18.4.1923, Wright 1990: 76)! Sheppard said he had previously expressed doubts about the discoveries (Sheppard 1923a: 171; 1932: 81; *The Daily Despatch* 11.4.1930) and so he was outraged that the paper read before the British Association 'was unaccompanied by a single expression of doubt as to the authenticity of the objects' (*ibid.*). Beaumont Morfitt was present at the meeting and was called to the rostrum to give evidence (*Eastern Morning News* 14.9.1922, *Yorkshire Post*

[3] An enigmatic reference to the 'harpoon of a marsh-dweller from darkest Holderness' appears in an account of the Museums Association Conference in Hull in 1913 (*Hull Daily Mail* 16.7.1913).

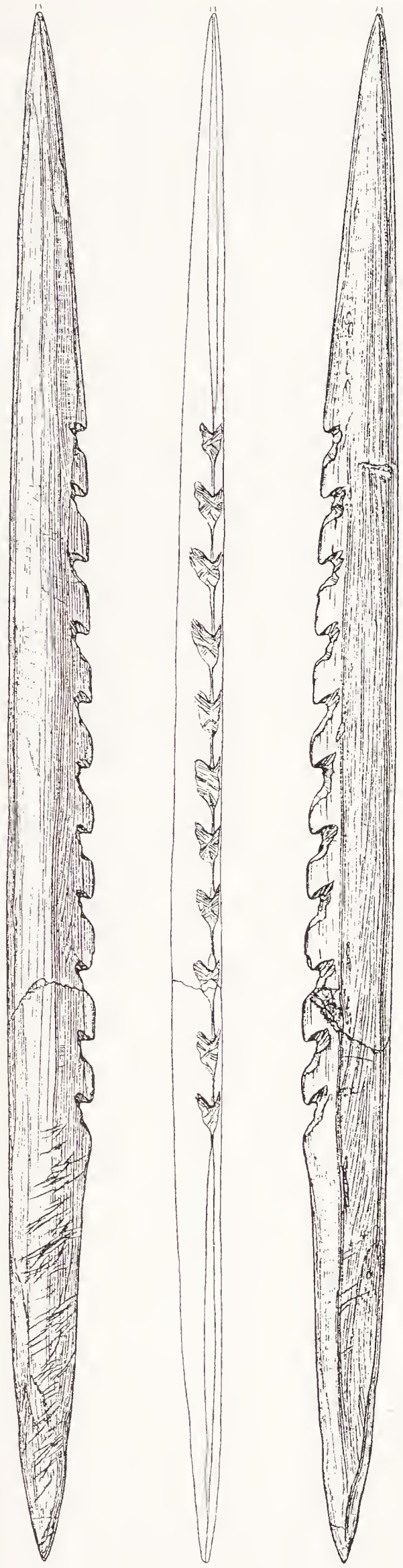

Fig. 2. Notched bone point from Hornsea, formerly in the Morfitt collection. Actual length 253 mm. B.M.Acc.no. 1929. 12-19.1 (drawn by Julian Cross).

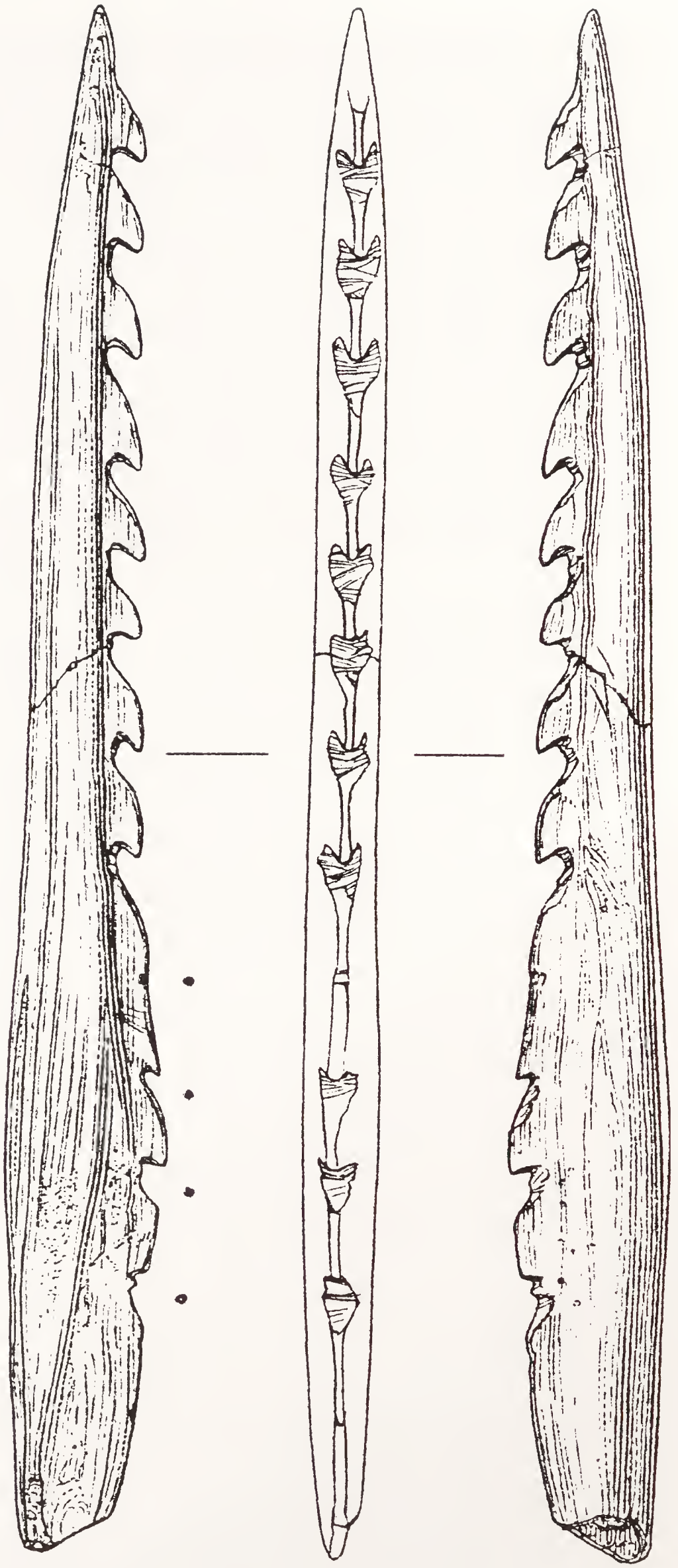

Fig. 3. Notched bone point from Skipsea Withow formerly in the Morfitt collection. Actual length 119 mm. B.M.Acc.no. 1929. 12-19.2.

14.9.1922; Read, Woodward and Kendall 1923: 49), but was unable to give a satisfactory reply to the questions (*Hull Daily Mail* 16.4.1930). Sheppard concluded his attack by suggesting that a panel of experts be appointed to look into the matter (*Eastern Morning News* 14.9.1922). Shortly after the British Association meeting in Hull the following poem appeared in the pages of the *Eastern Morning News*:

Long years ago — so long— no-one knows,
There came a man from Maglemose.
How he got here without clothes,
From Maglemose to Holdernose,
Without the frost-bite in his toes,
Is more than we can *dare* suppose.

This man a long bone harpoon throws
(Just like those found at Maglemose);
He aimed at an elk (or deer),
The harpoon pierced it like a spear;
It no doubt killed that elk (or deer),
In what was once called Skipsea Mere.

From long ago, in silt (or clay)
The harpoon and the elk did stay,
'Til Mr Morfitt passed one day,
With iron rod to find his way.
The fourteen feet it penetrated
And then it stopped; or so 'twas stated.

The rod touched something firm and bony
(So different from an object stoney);
Then Mr Morfitt dug deep down
The fourteen feet, and got renown
By finding something quite unknown,
(Except for one in Hornsea town).

How he dug, well no-one knows;
But he found trace of Maglemose!
He put it in his small Museum,
Where with the other all could see'em.
They rested there for years and years
Until the British Ass[ociation] appears.

Then an Armstrong long and weary,
Gave a most enthralling theory;
How the man from Maglemose
In the Baltic, *that* one knows,
Came to Atwick (or quite close),
While in search of food and clothes!

Then a Sheppard roared like thunder,
'There has been a fearful blunder,
The harpoon from Maglemose,
Is not old as you'd suppose';
And in a manner most indecent,
Said the harpoon was quite recent!
Eastern Morning News September 1922, repr. *The Naturalist* Oct and Nov 1922)

The poem is great fun and was probably written by Sheppard, who had something of a talent for writing humorous doggerel.

A fortnight after the Hull meeting Mr M. C. Burkitt, Professor J. E. Marr and Dr A. C. Haddon met in Cambridge to compare the Holderness points with specimens from Kunda in Esthonia. At the time it was claimed that the Committee represented the British Association. They concluded that 'in type, general facies, colour, and in the partially mineralised condition of the bone, the Holderness harpoons were identical with those from Kunda ... both the Holderness harpoons are genuine antiquities' (in Read, Woodward and Kendall 1923).

Another committee consisting of Sir C. Hercules Read, Professor A. Smith Woodward and Professor P. F. Kendall was appointed by the Council of the Royal Anthropological Institute to investigate the matter in London on 6th December 1922. Also present were Armstrong, Sheppard, Mr E. N. Fallaise (an official of the Institute), Mr G. A. Garfitt, Mr G. W. Lamplugh (a past president of the Geological Society) and Mr H. J. E. Peake, president of the Anthropological Section of the British Association meeting in Hull (*Yorkshire Post* 18.4.1923). The London committee, as it will be called for convenience, read letters of support for Armstrong from Sir William Boyd-Dawkins and Abbé Henri Breuil, the highly respected French prehistorian, and received written depositions from Armstrong and Sheppard. Its conclusion was ambiguous:

> In general we see no evidence in the objects themselves that is conclusively against their genuineness ... A curious feature is that the workmanship of the barbs is so similar as to point to their being the work of the same individual.
>
> (Read, Woodward and Kendall 1923: 50)

When the conclusions were published, Armstrong claimed victory (*The Times* 17.4.1923, Sheppard 1923a: 174) but Sheppard continued to cast doubt on the points by exploiting a series of apparent discrepancies in the evidence.

He was joined at the end of April 1923 by Elijah Howarth, Curator of the Sheffield Museum, who had known the Morfitts for some 40 years. Howarth made a plea for the protagonists to take themselves a little less seriously and alluded to a satirical episode in Charles Dickens' *The Pickwick Papers* (1836–37). This seemed to offer a face-saving humorous ending to the affair and Sheppard welcomed the contribution (1923c: 220). Howarth both publicly endorsed the good characters of William and Beaumont Morfitt and made a bizarre personal attack on Armstrong (*Yorkshire Post* 30.4.1923, 16.5.1923). It was impossible to support the Morfitts *and* attack Armstrong. The latter exploited his friendship with the family:

> Surely it is a strange expression of friendship and faith in Mr Morfitt to range oneself upon the side of his traducers and to pour out vials of scorn upon the person trying to uphold the honour of this veteran of 92, and establish the importance of his long years of patient research!
>
> (*Sheffield Telegraph* 19.5.1923)

Mindful no doubt of the bad publicity the affair was generating for himself and the Sheffield Museum, Howarth wrote a restrained summary of the debate (*Sheffield Daily Telegraph* 25.5.1923). It was effectively a strategic withdrawal.

Sheppard's case was not affected by this and was strengthened when the so-called Cambridge committee was discredited. O. J. R. Howarth, Secretary of the British Association, said that no committee had been appointed to investigate the Holderness points (*Daily News* 5.5.1923). To some it made no difference whether the committee which had met in Cambridge was properly constituted or not but Armstrong still felt it necessary to disassociate himself from publicity, claiming that a committee of the British Association had pronounced the points to be genuine (*Yorkshire Post* 11.5.1923). Sheppard, however, insisted that Armstrong had misled people and criticised the Cambridge committee for publishing a report in the name of the British Association as well as questioning its

impartiality given that one of the members had already accepted the Holderness points as genuine (1923c: 219).

In retrospect, it would be charitable to interpret the press release as an unfortunate error rather than a deliberate attempt to mislead but the end result, certainly so far as Sheppard was concerned, was that the first (Cambridge) committee's findings had to be excluded. With only the ambiguous conclusions of the second (London) committee left, Armstrong's case had been weakened to the extent that Sir C. Hercules Read (Chairman of the London committee) considered it to be 'not proven' (Sheppard *ibid.*). Armstrong replied that it was Sheppard's accusation of forgery that was 'not proven' (*Yorkshire Post*) 22.5.1923)!

After 1923 the controversy seemed to abate, both sides having exhausted themselves in the fierce exchanges of April and May. Armstrong complained to William Morfitt that he had no time for anything except to scribble replies to the newspapers critics (ERYCAS: DDX7/44, 24.5.1922). This ended the first phase of the controversy. After the death of Beaumont, the last surviving member of the Atwick branch of the Morfitt family, in 1929, the row broke out again. All the members of the Morfitt family in Atwick having passed away, Sheppard released evidence which he claimed to have previously withheld out of deference for old William Morfitt's feelings (*Daily Despatch* 11.4.1930, *Hull Daily Mail* 14.4.1930). This prompted Captain William Arnold Middlebrook, a long-time family friend and one of the executors of Beaumont Morfitt's will, to pick up the gauntlet and in a series of letters to the *Hull Daily Mail* the old arguments were re-circulated. The matter was still receiving attention during the early 1930s when new discoveries (Burkitt 1932) and different methods of analysis, such as the technique of pollen biostratigraphy pioneered by the Godwins, were beginning to cast new light on the Holderness points (Godwin and Godwin 1933).

Sheppard retired from the Hull Museums in October 1941 and died in 1945. The destruction of Hull's Municipal Museum in 1943 was no doubt a contributing factor. Sadly, much archive correspondence was also lost in the flames. In 1956 Clark and Godwin accepted the Skipsea and Hornsea points as genuine because of their similarity with the then newly discovered bone points from Brandesburton (1956). In 1962 Raymond Hayes felt obliged to write in defence of the authenticity of the Holderness points (*Yorkshire Post* 13.8.1962). Nowadays the balance of sympathy lies with Armstrong but lingering doubts remain (Gilbertson 1984: 6).

The first part of this essay has served to trace the course of the controversy and introduce the two principal protagonists, Armstrong and Sheppard. It has also shown that the controversy, which Gilbertson has likened to a fencing match (1984: 40), received a considerable amount of publicity over a period of ten years (between 1922 and 1932). An attempt will now be made to show that the objects were genuine, firstly by submitting them to a detailed examination and secondly by analysing Sheppard's case, taking each of his points of criticism in turn.

The notched bone points from Hornsea and Skipsea are part of the collections in the British Museum:

> ... Bequeathed by Beaumont Morfitt, Esq., Atwick, Yorks. Found in 1905 by a workman on the site of Hornsea Gasworks under 12 feet of peat and 200 yards from the mere ...
>
> (British Museum Registration No. 1928. 12–19.1:)

The point from Hornsea (Fig. 2) is 253 mm long and has 11 notches on one margin. It has been broken across the ninth notch (counting downwards from the tip). This break probably occurred when the point was posted back to William Morfitt by Boyd-Dawkins (Letter from Boyd-Dawkins to Morfitt: 1.6.1920). There is a second, smaller, break 7 mm up from the base of the point.

The point has been made from a piece of straight limb bone from a large mammal and scraped to a point at both ends. This scraping has produced a series of discontinuous longitudinal facets and a highly variable sub-angular cross-section. Fine parallel striae, such as would be left by a flint blade, are very apparent on some of these surfaces. The lower end (or tang) appears to have been whittled.

The notches have been formed by a criss-cross sawing oblique to the point's longitudinal axis. Despite a partial overlay by what are probably the residues of casting materials, enough of the detail is visible to confirm the technique used (Clark and Godwin 1956: pl. II, r.h.s.). It is difficult to term the pieces of bone between these notches 'barbs' as they do not project beyond the outline of the blank — hence the preferred description of this artefact as a 'notched' rather than a 'barbed point'.

Both facets of the tang are scored by oblique slashes. This slashing is far more obvious on one face than the other — hence, no doubt, the statement by Clark and Godwin (*ibid.*: 15) that it is scored 'on one face only'. These slashes are un-patterned and vary greatly in terms of length and depth of incision. Their function was presumably as roughening to help secure resin or binding (*cf.* Armstrong 1922: 131, Clark 1954: 127). Traces of dark fine-grained sediment or resin remain in several of the deepest slashes. Clearly these should be investigated.

The surface of this artefact is grey-brown and appears almost glazed. Small blackened and redder areas are reminiscent of the colour changes associated with gentle heating. A single contusion is just the type which might be left by a spade and there are numerous small scuffs and chatter-marks all over its surface.

The bone point from Skipsea is also in the British Museum and there is an equally terse entry in the accessions register:

> ... Bequeathed by Beaumont Morfitt, Esq., Atwick, Yorks. Found in 1903 by Beaumont Morfitt in Skipsea Withow, nr Atwick, under five feet of peat...
>
> (British Museum Registration No. 1929. 12–19.2

Unfortunately the paper label formerly on this artefact (Armstrong 1923a: Fig. I.3a) is no longer present.

The notched/barbed point from Skipsea is 119 mm long and has twelve notches, some of which only survive as traces along one margin. It has been broken across at the first and sixth notches, or just below the first and sixth barbs, counting from the top (for when this may have happened see comment on Hornsea).

The point has been made from a splinter of large mammal bone. Traces of the longitudinal grooving necessary for the isolation and extraction remain on one face of the point, although largely removed by subsequent scraping. Unlike the point from Hornsea, tip and tang are clearly differentiated, the cross-section changing downwards from almost circular to more nearly an ellipse. The tang is unscored.

Armstrong (1922: 131) and Clark and Godwin (1956: 15) have commented on the different aspect of the barbing and notching between the upper and lower portions of this point. The top eight notches are uniform and relatively deep. They have been made by transverse sawing, mainly perpendicular to the long axis of the point but oblique to this axis immediately behind/below the slightly hooked barbs. The technique is subtly different from that used on the Hornsea point. The four lowest notches (marked by dots on Fig. 3) were also formed by transverse sawing, but vary in depth with the topmost now only a 'ghost'. Clark and Godwin (*ibid.*) suggested that the object might be unfinished, while Armstrong (*ibid.*) thought this lower group of notches to be a hafting aid.

An alternative would be to envisage this artefact in its present form as the re-cycled fragment from a once larger point. The four lowest notches would then be accidental

survivors from its earlier design with the uppermost of the four now represented solely by the bottoms of the two deepest transverse incisions— the remainder having been smoothed away. The upper part of the artefact would then be seen as fore-shortened and repointed with the provision of eight new barbs.

The surfaces of the point are a lustrous black. Remnants of casting materials and possibly glue adhere to it. A dense black substance is just visible at the base of one of the older generation of notches. Since this would have incorporated into the hafted area of the re-modelled point it is legitimate to speculate as to whether this could be resin. Again this should be investigated.

Close examination of the specimens does not suggest that they are forgeries. Indeed, the fact that the bone point from Skipsea has been re-worked seems like an impossibly refined detail even for the most elaborate of hoaxes. Consequently there is nothing in the objects themselves which would lead one to suspect that they were not genuine. In fact the opposite is the case.

The remaining section of this essay will consider Thomas Sheppard's criticism of the bone points in order to determine whether he was justified and also to explore his motivation for such a highly personal attack on the Morfitt family.

One of the principal reasons for doubting the authenticity of the Holderness points was the fact that at the time of discovery it was claimed that no others were known in the country.[4] People such as Clement Reid, Thomas Boynton, members of the Hull Geological Society and dozens of other workers regularly kept watch on the exposed peat sections in the East Riding yet nothing similar to the Morfitts' bone points had been found (Sheppard 1923a: 171). If authentic, these discoveries were the first mesolithic points to be found in the country (*The Times* 17.4.1923, Sheppard 1923b: 80). In fact they were unique (*Yorkshire Post* 14.9.1922) and as late as the early 1930s it was possible for Sheppard to argue that the Holderness points were forgeries because they were still 'the only two Maglemosian implements ever found in Great Britain' (Sheppard 1930a: 193).

Sheppard's criticism based upon the rarity of the points carried considerable weight during the 1920s but, with the benefit of hindsight, we can see the Holderness bone points as merely the first of a substantial number — no less than 13 in the vicinity of Brandesburton (Davis-King 1980) — to be found in the region. Another point was found on Hornsea foreshore in 1932 but was not published until after the Second World War (Clark and Godwin 1956: 9). Yet another was found amongst 'moor-log' dredged from the bed of the North Sea on the Leman and Ower banks off Lowestoft (*ibid.*: 11–13, Burkitt 1932). When he heard about the latter, Sheppard sent the plaster casts of the Morfitts' points, which he had obtained from the British Museum for display in the Hull Museums' fakes and forgeries cabinet (Sheppard 1932: 81), to the Castle Museum in Norwich for comparison (*Eastern Daily Press* 2.4.1932). More recently still, an antler point has been found in a stratified context at Gransmoor in Holderness. This specimen (KINGM: 1995.150) is now part of Hull City Council Museums and Galleries archaeology collections (Sheldrick, Lowe and Reynier 1997). Of course, the discovery of more bone points in Holderness does not necessarily prove the authenticity of the Morfitts' specimens but if these were indeed forgeries then the family was fortunate to have chosen as a provenance for its discoveries a locality in which a considerable number of genuine artefacts would be found in later years.

4. In fact another point had been found near Crosby-on-Eden about 1875 and compared with examples used by the natives of Terra del Fuego (Hodgson 1895). We are grateful to Terry Manby for drawing this to our attention. It seems to be an ethnographic import. Some fine bone points from Denmark were in the Christy Collection of the British Museum during the nineteenth century.

Ironically, the apparent absence of mesolithic barbed bone points in Britain at the time when the Morfitts first acquired their specimens was used as an argument in favour of their authenticity. The London committee, for example, remarked that 'at the time the earlier find was made there was no available example of a Maglemose harpoon' (Read, Woodward and Kendall 1923: 50), i.e. there was nothing that could have served as a prototype in the faking of the bone points (see footnote 4 above). Sheppard countered this by saying that 'an illustration similar to the larger harpoon was available' in Lubbock's *Prehistoric Times* (Sheppard 1923a: 177, 178). Armstrong replied that the Lubbock illustration bore only a general resemblance to the Hornsea point (the larger of the two) and none whatever to the Skipsea example (in Sheppard 1923a: 176). He added that no illustration of a harpoon similar to that from Hornsea had ever been published in Britain before that in *Man* (Read, Woodward and Kendall 1923), but Sheppard noted that Armstrong himself had published an illustration of the point in September 1922 (Armstrong 1922, Sheppard 1923a: 176, Sheppard 1923c: 220, *Yorkshire Post* 12.5.1923). Technically this was correct but it did not affect the content of what Armstrong had said. Sheppard was adept at nit-picking of this kind and it must have reduced many of his opponents to distraction. Neither Armstrong nor Sheppard seems to have been aware of the Crosby-on-Eden discovery.

Sheppard also suggested that Munro's *Lake Dwellings of Europe* had been the source of an illustration from which the forgeries had been copied. Both William and Beaumont had seen the books by Lubbock and Munro, although Sheppard was careful not to accuse William Morfitt directly. No doubt because of William's advanced years Sheppard felt it necessary to exercise discretion. Armstrong responded to Sheppard's accusation by saying that 'For any man, however skillful, to have reproduced these and other distinctive characteristics, without an intimate knowledge of actual Maglemose harpoons, and before anyone had seen a Maglemose harpoon in this country, is impossible!' (Armstrong 1923a: 66). Some ten years later, Sheppard claimed that the harpoons had appeared after he lent the Morfitt family a copy of Lubbock's *Prehistoric Man*.

It is difficult to say whether the illustrations in Lubbock's *Prehistoric Times* did serve as prototypes for the production of the Holderness points. There is certainly a vague resemblance between illustration and supposed forgery but there are also clear differences, the elongated 'nose' and 'butt' of the Hornsea point, for example, whilst its typological similarities with barbed bone points from the Baltic and from other sites in England are marked, down to the oblique parallel striations on the butts (Clark and Godwin 1956, *cf.* Fig. 4.7 with Figs 3.4 and 5.8). This aspect of Sheppard's case against the bone points is therefore, unconvincing.

According to Sheppard, one of the most important reasons for doubting the authenticity of the Holderness points was their sharp, smooth condition which, he claimed, was inconsistent with their being of great antiquity (*Eastern Morning News* 14.9.1922; Read, Woodward and Kendall 1923: 50; Sheppard 1923a: 171–72). One member of the British Association said that invariably the mineral matter in the bone was dissolved by the acids in the peat (Armstrong 1923a: 66). This member was Professor Percy F. Kendall (1856–1936), Sheppard's geological mentor (Versey 1945) but Armstrong later refuted this line of argument by drawing attention to a complete red deer skeleton found in the peat at Skipsea which was displayed in the Hull Municipal Museum. He himself had also taken a pair of pike jaws in perfect condition from the peat and silt at Skipsea (1923a: 67). The condition of the points was considered by the so-called Cambridge committee (see above), whose conclusion has already been quoted above. The committee felt that the condition of the specimens was consistent with them having been found in peat. Sheppard insisted, however, that the points 'had a glossy appearance totally foreign to

anything from the peat in this district' (1923a: 175). Armstrong attributed the glossy finish to the fact that they had been treated with hot glue for the purpose of preservation, though he admitted that this common practice was not the most desirable (*Yorkshire Post* 21.4.1923, quoted in Sheppard, *ibid.*, 176). In fact the points had been treated in this way on the advice of the highly respected antiquary, Canon William Greenwell (1820–1918). Four hundred of Greenwell's letters are preserved in the East Riding of Yorkshire Council Archives Service in Beverley. In reply to an enquiry from the Morfitts about the best method of conservation, Greenwell wrote,

> I can answer from my own experience that the best method is to steep them in a fairly strong solution of glue.
>
> (ERYCAS DDX7/40: 30.4.1903)

Nor is this the only explanation for the glossy appearance of the points. Other factors, such as the general condition of the animal from whose bone they were made, the chemistry of the context in which they were deposited, the degree of mineralisation and even the possibility of them having been polished by water-borne particles (*pers. comm.*, Dr Andrew Foxon) may have contributed. For example a barbed bone point fragment from Brandesburton in the Hull City Museums archaeology collections (KINCM : 1973 57.c) has precisely the sort of shiny surface of which Sheppard was so suspicious. Sheppard wasn't satisfied with the glue explanation, however, claiming that at Hull an expert had said he could see steel file markings on the points (Sheppard 1923a: 178). Jill Cook of the British Quaternary Research Section and one of the writers have examined both of the bone points in question under a microscope and neither has detected any evidence to suggest that they had been shaped by a metal tool. Sheppard's criticism of the bone points on the basis of their condition, therefore, carries little weight.

The authenticity of the points was also challenged on the grounds of their associations. At the British Association meeting in Hull Sheppard said the pits in which the points had supposedly been found had also yielded pottery which had been identified by the British Museum as part of a Wedgwood teapot (*Eastern Morning News* 14.9.1922; Read, Woodward and Kendall *op. cit.*; Sheppard 1923a: 172)! This was disingenuous because he must have known from the earlier clash over the interpretation of the so-called Holderness pit-dwellings, another discovery made by the Morfitt family (Gatty 1909; Greenwell and Gatty 1910) that no-one had ever claimed that the points were found in the pits. Armstrong had only suggested that a mesolithic date for the points might be supported by the early neolithic date erroneously attributed to the pit-dwellings by Greenwell and Gatty (*ibid.*). By questioning the date of the pit dwellings, therefore, Sheppard contrived to cast doubt upon the date of the bone points (*Eastern Morning News* 14.9.1922; Read, Woodward and Kendall 1923). It would appear, however, that Sheppard's views were mis-represented because he later complained about the misleading summary of the written statement which was placed before the London committee (1923a: 169). Sheppard wrote that 'of course the pits have nothing to do with the harpoons in any way, and were merely mentioned in Mr Armstrong's original paper read at Hull, to prove in some way the genuineness of the harpoons' (*ibid.*). More emphatically, Sheppard said that 'the pits which have yielded Roman and later pottery have nothing to do with the harpoons and the harpoons were not found in these pits' (1923b). By Sheppard's own admission, this part of the case against the points is best disregarded.

As regards the associated archaeological evidence, in his paper to the British Association in Hull, Armstrong stated that 'no other implements or relics of man' were discovered 'at the same level as the [Skipsea] harpoon' (1922: 131). Although artefacts ranging in date from the Late Glacial (Gilbertson 1984) to the Late Neolithic (Piggott and Newbigin

1936) have been collected from Skipsea Withow, no relevance to the bone point can be demonstrated. As Sheppard (1923a: 171) shrewdly commented about one of these artefacts, a chipped flint adze of uncertain age (Armstrong 1923a: Fig. 4), they have 'no more bearing upon the date of the harpoons than has a threepenny-piece found in the same area'.

Records of fauna from Hornsea (Breuil 1922: 280–81) and Skipsea Withow (Armstrong 1922: 131, 1923a: 60) must also be used with caution. The reports of *Cervus giganteus*, (*Megaceros giganteus* the giant Irish elk), are of great interest, but it would need to be confirmed that they are not mis-identifications of moose (*Alces alces*) or the very large red deer (*Cervus elaphus* which is becoming increasingly familiar from the British Late Glacial. Although reindeer (*Rangifer tarandus*) were, of course, present in the Late Glacial they also survived into the earliest part of the Post Glacial (Clutton-Brock and Burleigh 1983). There is no clear evidence for associating either point with a prey animal, as at High Furlong near Blackpool (Hallam *et al.* 1973).

It is interesting that the relevant entry in William Morfitt's notebook indicates the presence nearby of remains of some kind of deer ('Mazawattee Diary' 27.1.1902). William Greenwell was told that these were red deer and Irish elk (ERYCAS: DDX 7/40, 30.4.1903) and Armstrong (1922: 131) states that the Skipsea point was found beneath 'the complete skeleton of a female elk (*Cervus giganteus*)'. Gilbertson mistakenly places the point *above* the elk (1984: 38). Unfortunately the skeleton itself is no longer extant. Most of the Morfitt collection was transferred to the Yorkshire Museum in 1951 but some material was dispersed amongst Holderness schools. It is not known what became of the elk skeleton from Skipsea and it is now impossible to verify the identification of the remains.

Pollen analysis by H. and M. E. Godwin (1933) and a wide range of environmental studies undertaken and co-ordinated by Gilbertson (1984) have demonstrated the existence of Early Post Glacial *and* Late Glacial sediments at Skipsea Withow. Even by 1932, the time of the earlier investigation, coastal erosion had already 'left the harpoon site some yards seaward' (Godwin and Godwin 1933: 39). With the loss of the actual find-spot these studies cannot contribute directly to establishing the age of the bone point.

It has already been demonstrated that Sheppard took mischievous delight in exploiting apparent discrepancies in the information provided by Armstrong. With regard to the bone points, he commented that 'the whole story of their discovery changes as often as it is repeated' (*Eastern Morning News* 19.4.1923). It is hard not to sympathise to some extent with this. In the articles which summarise what he had said in Hull in September 1922, Armstrong wrote that the Skipsea point 'was found in September 1903 ... It was resting in silt under five feet of overlying peat. Above it ... was the complete skeleton of a female elk' (1922: 131). Beaumont Morfitt's statement from the rostrum is only known from contemporary newspaper reports and from what Sheppard claimed he had said, e.g.:

> Mr Morfitt was probing the peat with an iron rod, and at a considerable depth found solid objects, and on digging down to them he discovered the harpoon and a skeleton of an elk.'
>
> (*Yorkshire Post* 18.4.1923)

> They were 12 or 14 feet down and lying on boulder clay.
>
> (*Yorkshire Post* 14.9.1922)

The apparent discrepancy in the stratigraphical contexts as related by Beaumont and Armstrong featured in the written submission to the London committee (Read, Woodward and Kendall 1923: 49; Sheppard 1923a: 173). Yet examination of contemporary newspaper reports does not show conclusively that Beaumont said he found the point *in* boulder clay. In order to understand what was said and by whom, the various references

Table 1

Location	Source
'the harpoon was found ... by Mr B. Morfitt ... It was resting in silt, under five feet of overlying peat'.	Armstrong 1922: 131
'embedded at the bottom of what was a lake ... They were 12 or 14 feet down, and lying on boulder clay'.	Beaumont Morfitt quoted in the *Yorkshire Post* (14.9.1922)
'from boulder clay at the base of the peat'	Sheppard quoting Beaumont Morfitt before the London Committee Read *et al.* 1923
'out of the boulder clay at the base of the peat'	Sheppard 1923a: 173

to the stratigraphic context of the Skipsea point are tabulated in Table 1. If the Skipsea point was found *on* boulder clay it was strictly speaking at the interface between the glacial till and the lacustrine silt. Nevertheless Armstrong gave a rather unsatisfactory explanation that there were 'holes in the silt in which pieces of peat had been thrust'. From this it was deduced that 'small rafts had been used in prehistoric times ... and that the holes had resulted from the penetration of poles used to propel them' (Sheppard 1923a: 173, Armstrong 1923: 61). Sheppard was incredulous! Armstrong's explanation does seem improbable but he was desperate to reconcile the evidence as given by himself and by Beaumont Morfitt.

The stratigraphic context of the Morfitts' points was also used by Sheppard in an attempt to discredit the discoveries. If, as he claimed, the London committee had concluded that the points were the work of one and the same individual and one point was found in boulder clay under peat at Skipsea and the other in silt under peat at Hornsea, then that individual must have lived for thousands of years because of the difference in geological time implied by the two stratigraphic contexts (Sheppard 1923a: 178). This argument is open to a number of objections. Firstly the London committee's conclusion had not been anything like as emphatic as Sheppard implied. Secondly, only Sheppard said the Skipsea point was found in boulder clay and thirdly the Hornsea point appears to have been found in or under a considerable depth of peat.

Armstrong seems to have suffered from a number of disadvantages during the course of the controversy. His greatest weakness was the poor quality of the Morfitts' manuscript notes, which provided Sheppard with a number of discrepancies to exploit. G. W. Lamplugh, F.R.S., F.G.S. (1859–1926) visiting the Morfitts' Museum in July 1908 noted that the specimens were badly labelled and that William Morfitt relied mostly on memory to provenance them (Hull Museum Geology Department Field Notebook (Glacial) No. 7).[5] In this regard the depiction of the Morfitts, father and sons, as gentlemen scientists carrying out work of great value on the Holderness coast and recording their findings in a creditable manner in special log-books, did not help matters. Although it invited respect, it obliged Armstrong to place a high value on what they had recorded. Whilst there is considerable archaeological interest in their manuscript notes (Sitch 1991), it must be admitted that they are an inadequate documentary record. This may explain Armstrong's

5. We are grateful to Michael Boyd, former Keeper of Geology, Hull Museums and Galleries, for drawing this to our attention.

apparent reluctance to produce the log-books for public inspection. He first referred to them explicitly in the *Yorkshire Post* (21.4.1923):

> The most reliable facts relative to the finding of the harpoon (*sic*) it will, I think, be granted, are, the written statements of Mr W. Morfitt. In these books a careful daily record has been kept of observations, and of finds made over a long series of years. The facts as given by me, were personally abstracted from those books. The entries occur in proper sequence and chronological order, and were set down at the time of each discovery, when the facts were fresh in memory.
> (in Sheppard 1923a: 176)

Professor Kendall, a member of the London committee, was astonished by Armstrong's statement and asked why the log-books were never referred to during the meeting (*ibid.*: 177). Armstrong explained that the log-books themselves were not put before the committee except in the form of a written statement which summarised the relevant entries (*Yorkshire Post* 1.5.1923). Armstrong claimed to have offered to produce the log-books if required. Sheppard said that the Secretary of the Royal Anthropological Institute and other members of the London committee had assured him that the log-books were never mentioned at the meeting (*Yorkshire Post* 12.5.1923). Armstrong said that there was no call for him to mention them and no questions were asked about them. Nowadays this would be regarded as 'being economical with the truth'.

Armstrong's reluctance to put the log-books entries on public view looks suspicious and their very existence might be questioned. Some documents and note-books held by the Yorkshire Museum may well be the Morfitts' logbooks. They record finds in date order just as Armstrong said but they are not comprehensive and only the Skipsea point is mentioned in them. If the Yorkshire Museum documents are the log-books they would have done the Morfitts little credit because some notes are written in an almost 'stream of consciousness' style, with numerous mis-spellings and grammatical errors. The entries also gave contradictory information about the dates on which the points were found. This discrepancy Sheppard eagerly exploited.

In his paper to the British Association in Hull, Armstrong had said that the Hornsea point was found in 1915 and the Skipsea Withow point in 1903 (1922: 131). The publication of the report of the London committee, however, includes photographs of the Holderness points, in which the Hornsea specimen is clearly labelled as having been found in 1905 (Read, Woodward and Kendall 1923: pl. 4, 4a). Sheppard, querying this discrepancy, said that the Skipsea point was displayed in Hull before 1905 (1923a: 171). The various references to the dates of discovery of the points are summarised in Tables 2 and 3.

TABLE 2: The Hornsea Point

Date of Discovery	Reference
1902? ('three years wrong as regards the date the large harpoon was found')	Sheppard 1923a: 178
1905	Armstrong 1923a: 61
1905	Read *et al.* 1923: 49
1915	Armstrong 1922: 131
1915	*Yorkshire Post* (18.4.1923)
1915	*Sheffield Daily Telegraph* (25.5.1923)
24.1.1915	Morfitt MS note in the Yorkshire Museum
5.2.1915	Morfitt MS note in the Yorkshire Museum

Table 3: The Skipsea Point

27.1.1902	'Mazawattee Diary', Morfitt Collection, Yorkshire Museum
before 26.4.1902	Letter William Greenwell to William Morfitt ERYCAS: DDX 7/40
September 1903	Armstrong 1922: 131.
1903	Read *et al.* 1923: 50
1903	Armstrong 1923a: 60
1903	*Sheffield Daily Telegraph* (25.5.1923)
1905	*Yorkshire Post* (18.4.1923)
1914	Morfitt Collection MS note Yorkshire Museum

The date of discovery of the Hornsea harpoon ranges from 1902 (i.e. 1905 from the specimen label, less three years according to Sheppard) to 1915, and 1905 is written on the specimen label. The specimen label should *à priori* be authoritative. Armstrong consistently quoted 1905 apart from 1915 in his 1922 paper. A manuscript note in the Morfitt collection at the Yorkshire Museum reads:

Found at Hornsea on the margin of the Mere or fresh water lake, 1915- a 10 barbd (*sic*) bone spear made from the bone of sting Ray fish, found whist excavating for a New Gasometer at Hornsea 12 [,] 4 (deleted) [,] 16 (deleted) feet below the soil surface in a lacustrine bed amongst the roots of sedges and reeds
5/-
January 24 1915

Another manuscript note reads simply 'February 9th 1915. Bone spearhead Hornsea Mere 5.0' (Yorkshire Museum Morfitt collection). The date of 1915 seems more reliable even than the date of 1905 written on the label, for, unlike the Skipsea Withow specimen, the Hornsea bone point is not mentioned in William Greenwell's letters to William Morfitt. Greenwell began corresponding with the family in 1902 and his last letter to William was written in 1914. Furthermore, a copy of a letter from Professor Sollas to a friend of the Morfitt family, Mr G. Jeff, dated 14th March 1912, only refers to one spearhead. It is possible, however, to reconcile the conflicting evidence for the date of discovery of the Hornsea specimen if one assumes that the point was found in 1905 but only acquired by the Morfitts in 1915. Had the point been acquired for their collection in 1905 it is reasonable to suppose that *two* bone points would have been mentioned in the Greenwell and Sollas correspondence in the Morfitt collection.

We are on much firmer ground with the Skipsea Withow point because there is a reference to its discovery in the Morfitts' 'Mazawattee Diary' dated 27th January 1902:

I discovered a beautiful bone spearhead North End Skipsea bog, a tooth of a dear (*sic*) ribs a piece vertebrae (*sic*) and 1 leg bone

(Yorkshire Museum Morfitt Collection)

Several letters from William Greenwell refer to this specimen:

I hope you will excuse me for troubling you with a letter on archaeological matters. I have been told that you have found a bone or deer's horn implement of a type which has not infrequently occurred in the cave deposits of the palaeolithic period, probably a harpoon or other instrument for spearing fish or an animal.

(ERYCAS: DDX 7/40:26.4.1902)

I gather from what you say that the bone harpoon was found under circumstances that imply it belonged to the time when the Red Deer and the Irish Elk (Cervus Megaceros) were occupant of our country.

(ERYCAS: DDX 7/40:30.4.1903)

The most authoritative date for the discovery of the Skipsea Withow point, therefore, is 27th January 1902 (Mazawattee Diary entry) since this is supported by Greenwell's letter of 26th April of the same year. This may explain Sheppard's claim that one of the points had been exhibited in Hull before the supposed discovery date of 1905 (*Yorkshire Post* 19.4.1923, Sheppard 1932: 83). Sheppard also said that the log-book entries 'were three years wrong as regards the date the large harpoon was found' (*Yorkshire Post* 24.4.1923). Sheppard must have been referring to the bone point from Hornsea, inferring that it had been found in 1902. It is now clear that the Skipsea Withow point was found in 1902 and it is possible Sheppard confused the two. The evidence concerning the date of the discovery of the bone points is, therefore, problematical. The discrepancies in the various dates given by Armstrong and the Morfitts does not necessarily mean that the points were forgeries, as even Sheppard conceded (*Eastern Morning News* 19.4.1923), but it did muddy the waters considerably.

The doubt concerning the dates of discovery of the Morfitts' bone points enabled Sheppard to challenge them on the grounds of improbability:

> Are we expected to believe that in 10,000 BC, one man made these harpoons ... and then within a relatively few months of each other both were obtained — and by one individual? Such a series of coincidences is surely a little too much to swallow by the credulous of us.
>
> (Sheppard 1923a: 175)

We now have a much better idea of when the points were found and there must have been an interval of at least three years and possibly as much as twelve between the discoveries. It is interesting to compare the statements made by Sheppard regarding the interval between the respective discoveries (Table 4).

It is clear that Sheppard reduced the interval between the discoveries in order to make his charge more convincing. Our reading of the articles leads us to conclude that the London committee had not said emphatically that the points were made by the same person, they were not discovered by the same person and they were found at least several years apart. There was no improbable sequence of events and this line of argument must be dismissed.

Right from the start one of the most serious objections to the Holderness points, and to the Skipsea Withow point in particular, was the account of their stratigraphical context, which was both confused and nonsensical. Beaumont Morfitt's verbal statement from the rostrum at the British Association meeting provided Sheppard with more evidence to question the authenticity of the points as we have seen (Table 1 above). Sheppard's objection was partly based upon estimates of the thickness of the peat from which the Skipsea Withow point had allegedly been recovered, since nowhere on the Holderness coast were there deposits of anything like that depth (Read, Smith and Kendall 1923: 49), Sheppard said that 'Mr Morfitt was probing the peat with an iron rod, and at

TABLE 4

Interval	Source
'found within two years of each other'	Sheppard quoted in the *Yorkshire Post* (14.9.1923)
'within a relatively few months of each other'	Sheppard 1923a: 175
'within a few months of each other'	Sheppard 1923b
'within a few weeks of each other'	Sheppard 1930a
'about the same time'	*Hull Daily Mail* (16.4.1930)

a considerable depth found solid objects, and on *digging down* (our italics) to them he discovered the harpoon and a skeleton of an elk'. Sheppard commented that it was a mystery how Beaumont kept the water out of the hole whilst he dug a hole in the water-logged peat (1923a: 172–73, *Eastern Morning News* 19.4.1923). Armstrong's 'defence' did not altogether clarify the situation:

> Mr Morfitt ... was doing what he had done scores of times before, searching for the bones of animals buried in the peat ... It was neither stated, nor intended to be implied, that a hole 12 feet deep had been dug to recover the harpoon. The bed of peat is upon the sea coast ... The harpoon was found beneath what remained of this eroded peat upon the beach.
>
> (*Yorkshire Post* 21.4.1923)

Sheppard insisted that Beaumont had distinctly stated that he inserted his iron rod 12 feet into the peat (1923a: 178) but Armstrong disagreed entirely with Sheppard's account of the Hull meeting (*Yorkshire Post* 1.5.1923). Sheppard continued to question the authenticity of the Skipsea point into the 1930s on the grounds that it was impossible to dig a hole to such a depth in water-logged peat (*Hull Daily Mail* 14.4.1930, Sheppard 1932: 81). With regard to the Hornsea point, which had been found by a workman beneath 12 feet of peat during an excavation for a gasholder near Hornsea Mere (Armstrong 1922: 131), a British Association sub-committee satisfied itself that no such bed of peat existed and the workmen denied all knowledge of any such discovery (Sheppard 1930a: 193, 1930b: 259).

This evidence seems very damaging to Armstrong's case but careful study of Sheppard and William Morfitt's relationship at the turn of the century has thrown an altogether new light on the affair. In view of later events it may come as something of a surprise that initially Thomas Sheppard and William Morfitt were good friends. Sheppard must first have encountered the family during the late 1890s when he was secretary of a number of 'scientific' societies in Hull. At this time no society visit to the Holderness coast near Skipsea was complete without a visit to see the collection of fossils and archaeological specimens in Mr Morfitt's cottage at Atwick. Sheppard published a short article on one of the family's more spectacular discoveries, that of a pair of red deer antlers from the peat at Hornsea (Sheppard 1899). In his introduction to this article Sheppard lavished praise upon the family:

> The excellent work being done by Mr William Morfitt, of Atwick, and his two energetic sons, is well known to our members, and those who had the good fortune to be present at the excursion to Atwick, in June last, will not soon forget the extent of the collection...
>
> (*ibid.*: 22)

He described the location of the finds, the circumstances of discovery and quoted the dimensions. He also gave the height of the find-spot relative to the top of the cliffs, which acted as a rough and ready datum point:

> The peat from which they were obtained is about fourteen feet below the top of the present cliff.
>
> (*ibid.*)

Sheppard used the same convention in recording the position of wooden remains at Sand-le-Mere (1900: 76). It is not clear whether Sheppard adopted this practice from the Morfitt family or vice versa. This method of measuring the level of archaeological material would not be used today. An understanding of the recording techniques used by the Morfitts and Sheppard at this time may well provide explanation for what may seem improbable. In order to appreciate the significance of this we need to consider where Beaumont was standing when he discovered the Skipsea Withow point.

Sheppard's criticism of the Skipsea Withow specimen was based upon the assumption that Beaumont Morfitt was standing on top of the cliff and digging down (*Yorkshire Post* 18.4.1923, 24.4.1923; *Eastern Morning News* 19.4.1923; *Hull Daily Mail* 14.4.1930, 16.4.1930; Sheppard 1932: 81). Of course this would have been impossible if the point was 12 or 14 feet down as Beaumont had said. Equally it would have been difficult to excavate a hole of any *considerable* depth standing on the foreshore. Beaumont, however, could have probed the layers of peat exposed on the foreshore with his iron 'pricker' and dug *shallow* holes without the risk of flooding. Armstrong's statement in the *Yorkshire Post* of 21.4.1923 seems to confirm this explanation:

> It was neither stated nor intended to be implied, that a hole 12 feet deep had been dug. The bed of peat is upon the sea coast, and was at that point greatly eroded by the sea. The harpoon was found beneath what remained of this eroded peat upon the beach.

The layer of peat in which the point was found was still 12 or 14 feet below the top of the cliff but it was on the foreshore, coastal erosion having removed the layers above. In these circumstances excavation to a shallow depth was still feasible but the find-spot would still be 12 or 14 feet below the top of the cliff. There is also another scenario which appears to have been completely overlooked in previous consideration of this problem. Beaumont could have been probing the peat layers exposed in the cliff section *horizontally* (plate 1). In both cases the layers examined would be at some considerable depth relative to the top of the cliff but recovery of artefacts would have been facilitated by the fact that coastal erosion had both removed the bulk of the overlying deposits and enabled inspection of still-stratified contexts in the cliff section. Beaumont seems to have been in the habit of probing the layers thus exposed with his iron 'pricker' whilst searching for archaeological remains. A photograph of the Skipsea Withow in the early 1900s makes the distinction clear (Sheppard 1903b: 25; our Fig. 1). Giving the depth of the finds relative to the top of the adjacent cliff was simply the Morfitts' recording convention. It is surprising that Sheppard himself should have used and acknowledged that convention at the turn of the century! It is difficult to believe that Sheppard had forgotten this and his objection to one of the points on the grounds of the impracticability of its recovery is hard to understand.

As for the Hornsea point, the workmen's denial that any such discovery had been made there is understandable if Beaumont had paid five shillings for it, as is shown by the manuscript note in the Yorkshire Museum quoted above. Workmen traditionally had always been a rich source of cabinet specimens for antiquaries with plenty of cash. Indeed during the construction of the railway station in York, in the nineteenth century, antiquaries were banned from the site because the various rival collectors competed for the workmen's attention and interfered with the progress of work. Unscrupulous workmen in London had even satisfied the wishes of gullible collectors by making and selling their own fake antiquities. Some forgeries, such as the notorious 'Billies and Charlies' and the work of 'Flint Jack' fooled many museum curators for a time, though ironically they are now the subject of legitimate museological research in their own right. Sheppard had a particular interest in fakes and forgeries (1908) and his attitude to the Morfitts' bone points may have been conditioned by his public persona as the wily curator, who obtained genuine specimens for the public collections by hook or by crook but was never himself duped by the trickery of others.

The testimony of the site foreman and a consulting engineer that no peat layers of any thickness were found during the construction of the Hornsea Mere gasholder (*Hull Daily Mail* 14.4.1930; Sheppard 1930b) seems to be an unsurmountable obstacle. It is interesting to read, therefore, that when the Hull Scientific and Field Naturalists' Club

visited Hornsea Mere in August 1902, it saw a deep section exposed during the erection of a new gasometer. That section comprised beds of gravel, shell marl and *peat* and the person who recorded this information was none other than the Hull curator, Thomas Sheppard (Sheppard 1902)! This throws a rather sinister light on his motives, although it would be charitable to think that he had simply forgotten about this evidence by the time of the controversy.

Consideration of the numerous objections that Sheppard raised suggests that none of them, in themselves, were really damaging, since they depended to a certain extent on subjective interpretations of what had been said or on superficial discrepancies in the information. Sheppard's motivation is open to question but it is clear that he was absolutely convinced that the points were forgeries. The London committee acknowledged this in its conclusions:

> Mr Sheppard appears to have had strong grounds for doubting the authenticity of the harpoons, but the evidence on which his judgment is based is no longer verifiable.
>
> (Read, Woodward and Kendall 1923: 50)

At first glance it is not at all clear what was the nature of this evidence which was 'no longer verifiable' and this weakness in Sheppard's case was exploited by Armstrong (*Yorkshire Post* 4.5.1923). Armstrong alludes to it in his 1923 paper:

> Mr Sheppard's charge of forgery is based upon certain evidence said to have been given him by a person *now dead — therefore unverifiable.*
>
> (Armstrong 1923a: 66)

The identity of this person was only revealed in September 1929 in a letter from Sheppard to Hazzledine Warren:

> The Maglemose harpoons were made by Mr B. Morfitt in the presence of his sister who was spending a weekend with Mrs Sheppard and I and told us how it was done.
>
> (reproduced in Gilbertson 1984: 39)

The following year Sheppard wrote:

> Now that the father has passed away there is no need to keep back this evidence. Miss Morfitt, a sister now deceased, told the present writer in the presence of others that her brother Beaumont made these harpoons from the leg bone of a Red Deer.
>
> (Sheppard 1930a: 193)

The sister Sheppard referred to was Charlotte, who died in 1914. Her weekend away with the Sheppards must have taken place in or before 1903, when Thomas Sheppard quarrelled with her father (Sitch 1993). Sheppard claimed that he had kept back this information out of sensitivity to old William Morfitt's feelings but Sheppard's revelation only came after the death of Beaumont in 1929, six years after that of William. As 'Eolith' commented:

> The other evidence from this your contributor would have been more valuable had it been brought forward before the death of the parties directly concerned. How can it be regarded as a serious contribution to the controversy now that the alleged incidents are no longer verifiable?
>
> We are told that, at the enquiry referred to, the Director of the Hull Museums out of regard for the feelings of Mr Morfitt withheld vital information. Mr Sheppard's sense of propriety is really too subtle.
>
> (*Hull Daily Mail* 16.4.1930)

Seventy years after the event it is difficult to be sure what was said and by whom. On the one hand Sheppard claimed there was another witness (presumably Mrs Sheppard)

to the conversation with Charlotte so the allegation should be taken seriously; on the other hand Charlotte and her father were particularly close and it is inconceivable that after William Morfitt and Sheppard's row in 1903 she should have been so disloyal as to give Sheppard highly sensitive information about her own brother. A number of possibilities are suggested: either she told the truth and the Skipsea point at least is a forgery, or it is authentic and she deliberately misled Sheppard for reasons that we shall never appreciate; alternatively she was genuinely mistaken. Sir William Boyd-Dawkins suggested that there had been a misunderstanding in a letter to Armstrong:

> I would further mention a point which may be useful in the investigation of this charge... It is simply that one of the harpoons was broken in the post when I returned them to Mr Morfitt and that it is just possible that somebody may have seen one of the Morfitts repairing it, and jumped at the conclusion that he was forging it.
>
> (Sheffield City Museum ALA 5/5: 20.9.1922)

Unfortunately the breakage in transit referred to occurred in 1920 (six years after Charlotte's death) whereas Charlotte's revelation to the Sheppards can only have been made in or before 1903. Consequently it cannot have been the repair of one of the points which prompted Charlotte's alleged accusation of forgery. Boyd-Dawkins' suggestions is of value in another sense, however, since Charlotte might have seen Beaumont engaged in the fabrication of some other archaeological 'discovery' as a practical joke on their father and confused this with the bone points. If this had happened before 1903 when William Morfitt and Sheppard were still friends, she might well have told the Sheppards. Elijah Howarth acknowledged that Beaumont 'was always fond of a joke, and had a very entertaining fashion of humour' but added 'there was no shadow of deceit about him' (*Yorkshire Post* 30.4.1923). This line of enquiry is highly speculative but if the Morfitts' bone points are judged authentic on all other grounds, it may offer an explanation for Charlotte's alleged statement. The controversy may have stemmed from nothing more than a misunderstanding on the part of Charlotte Morfitt.

There are clear indications that one of the artefacts in the Morfitt collection now in the Yorkshire Museum has been fabricated using modern steel tools (letter from Grahame Clark to George Willmot 22.10.1951). It is a matter for speculation whether this was the artefact that Charlotte saw her brother making and assumed to be one of the bone points. It may have originated as no more than a private joke between family members but from the moment Charlotte shared it with the Sheppards it acquired a whole new perspective. It is also possible that Charlotte's statement was designed to put Sheppard 'off the scent'. Already, within a few years of becoming curator of the Hull Municipal Museum, Sheppard enjoyed something of a dubious reputation for his acquisitiveness and the Morfitts may have intended to do no more than create doubts in his mind in order to pre-empt any desire to acquire them for Hull Museums. Gilbertson has suggested that the whole thing was a joke at the expense of the Sheppards (1990: 94). If so, the joke back-fired horribly.

It can now be shown that Sheppard was less than impartial in his review of the evidence surrounding the points. He clearly had a long-standing grievance against the Morfitt family, dating back over 20 years to the incident in 1903 (Sitch 1993). This grudge manifested itself in his repeated adverse criticism of any archaeological discovery with which the family was connected and also barely disguised snide references in the *Naturalist* of which Sheppard was one of the editors. Some of this criticism was undoubtedly justified but the evidence suggests that Sheppard gave way to strong personal feelings in his dealings with the Morfitts and their supporters after 1903. In this sense the great Holderness harpoon controversy was a dispute waiting to happen. Whatever the

discovery, it seems, Sheppard would have found some means by which to cast doubt on its validity and the people associated with it. The dispute over the Morfitts' bone points was simply the last and most vehement of a whole series of altercations going back over 20 years and the reason they generated the greatest controversy was because the stakes were so high. The discovery and identification of the first recognised Late Glacial (see below) barbed bone points in the country was a tremendous archaeological coup. The thought of possessing those same specimens must have been tantalising for Sheppard who had a collecting fetish (Sitch 1992). It is not particularly edifying to consider that the explanation for the great Holderness 'harpoon' controversy should be nothing more than a conflict of personalities and petty rivalry. 'The interplay of egos, reputations and career aspirations are also important factors in the problem' (Bahn 1993).

In conclusion, this study has tried to document the date and circumstances of discovery of the bone points from Skipsea and Hornsea formerly in the private museum of the Morfitt family at Atwick. The various grounds on which Thomas Sheppard challenged their authenticity may have carried considerable weight during the 1920s but those objections do not bear close scrutiny today. There is good reason to believe that Sheppard manipulated some of the evidence in order to discredit the Morfitt family, with whom he had fallen out some 20 years earlier. Sheppard may have unwittingly held up the progress of Late Glacial and mesolithic archaeology in East Yorkshire for a generation. Neither do the members of the Morfitt family, principally Beaumont and William, themselves emerge unscathed. Their failure to keep adequate records of their discoveries on the Holderness coast made it very difficult for people like Armstrong to argue their case effectively but William Morfitt's relative lack of education needs to be taken into account.

The deficiencies of the paper record do not, however, imply that the bone points are forgeries. There is nothing to suggest that these points are modern. As already noted, the technique used to produce the notched edges differs between the two points, and there is no reason to believe that they were manufactured by the same individual (Read, Woodward and Kendall 1923: 50; Sheppard 1923a). The condition of both points is not inconsistent with burial in a fine-grained water-lain mineral sediment.

No attempt has been made to date the Morfitts' points. Soaking in hot glue is expected to have contaminated them for radio-carbon dating purposes long ago. Barbed and notched points are known, however, from both Post Glacial and Late Glacial contexts. A number show the distinctive transverse or criss-cross sawing used on the points from Skipsea and Hornsea. Two of these have been directly radiocarbon-dated — that trawled up from between the Leman and Ower Banks (Burkitt 1932) to 11,749±150 BP (OxA-1950: Hedges *et al.* 1990: 105), and that from a gravel-pit at Sproughton, near Ipswich (Wymer *et al.* 1975) to 10,910±150 BP (Gowlett *et al.* 1986: 120). The Cransmoor point has been dated between 11,500 and 11,100 radiocarbon years BP (Sheldrick, Lowe and Reynier 1997). Given that it has yet to be demonstrated that such bone points are Post Glacial in date, there is no reason not to infer a Late Glacial date for the Skipsea and Hornsea points. While we may be proved wrong in this, we are, however, confident that neither can be dated so late in the Post Glacial as to be considered a forgery. Seventy years after the great controversy and almost a century after their discovery, the last lingering doubts concerning the Morfitts' bone points from Holderness should have been dispelled.

Abbreviation

ERYCAS: East Riding of Yorkshire Council Archives Service

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AN IRON AGE AND ROMANO-BRITISH 'LADDER' SETTLEMENT AT MELTON, EAST YORKSHIRE

By M. C. Bishop with contributions by John Carrott, Peter Didsbury, L. J. Gidney, Harry Kenward, J. P. Huntley, and Annie Milles

SUMMARY

A series of ten trial excavation trenches were located in the South Lawn area at Melton, East Yorkshire (formerly North Humberside), on a 'ladder' settlement site previously recorded from aerial photographs. The evaluation was undertaken prior to proposed junction improvements on the A63, and the trenches were placed so as to test the results of a geophysical survey within the proposed construction corridor. A complex late prehistoric rural landscape of enclosure systems and settlement sites was identified, with important evidence of continuity in the transitional period between the late pre-Roman Iron Age and the Roman period. This occupation does not seem to have lasted much beyond the second century AD, although evidence was found of a medieval timber building at the western end of the area examined.

INTRODUCTION

The area investigated (SE 975 264) lies immediately to the north of the A63, to the east of Melton village, and north–west of the village of North Ferriby (Fig. 1). Subsequent to a desktop study (Dennison 1992) and a geophysical survey (Geo-Services International 1993), evaluation was undertaken in July and August of 1994 by Northern Archaeological Associates in advance of the proposed construction of a grade separated junction for the A63 that would encroach into the area known as South Lawn. The evaluation was commissioned by Anthony Walker and Partners (now BHWB Environmental Design and Planning) on behalf of Acer Consultants Ltd, lead consultants to the Highways Agency. The Highways Agency funded the excavations and this publication.

GEOLOGICAL BACKGROUND

The Melton site on South Lawn sits astride Cretaceous chalk to the north–east and Jurassic clay to the south–west, the soils being mainly stagnogleyic argillic brown earths or, at the extreme west end of the site, gleyic brown calcareous earths (Dennison 1992). A series of trial pits and boreholes showed that much of the area lay upon gravel and sand subsoil (Allied Exploration and Geotechnical Limited 1994), and excavation subsequently confirmed this.

ARCHAEOLOGICAL BACKGROUND

The site lies in one of the richest and best-known areas of the villa economy of Roman Britain. It is situated to the south–east of the Roman villa at Welton Wold and to the north–east of the fort and town of *Petuaria* at Brough-on-Humber (Fig. 1), which dates from the Flavian to late Roman periods, and was a crossing point (probably by ferry)

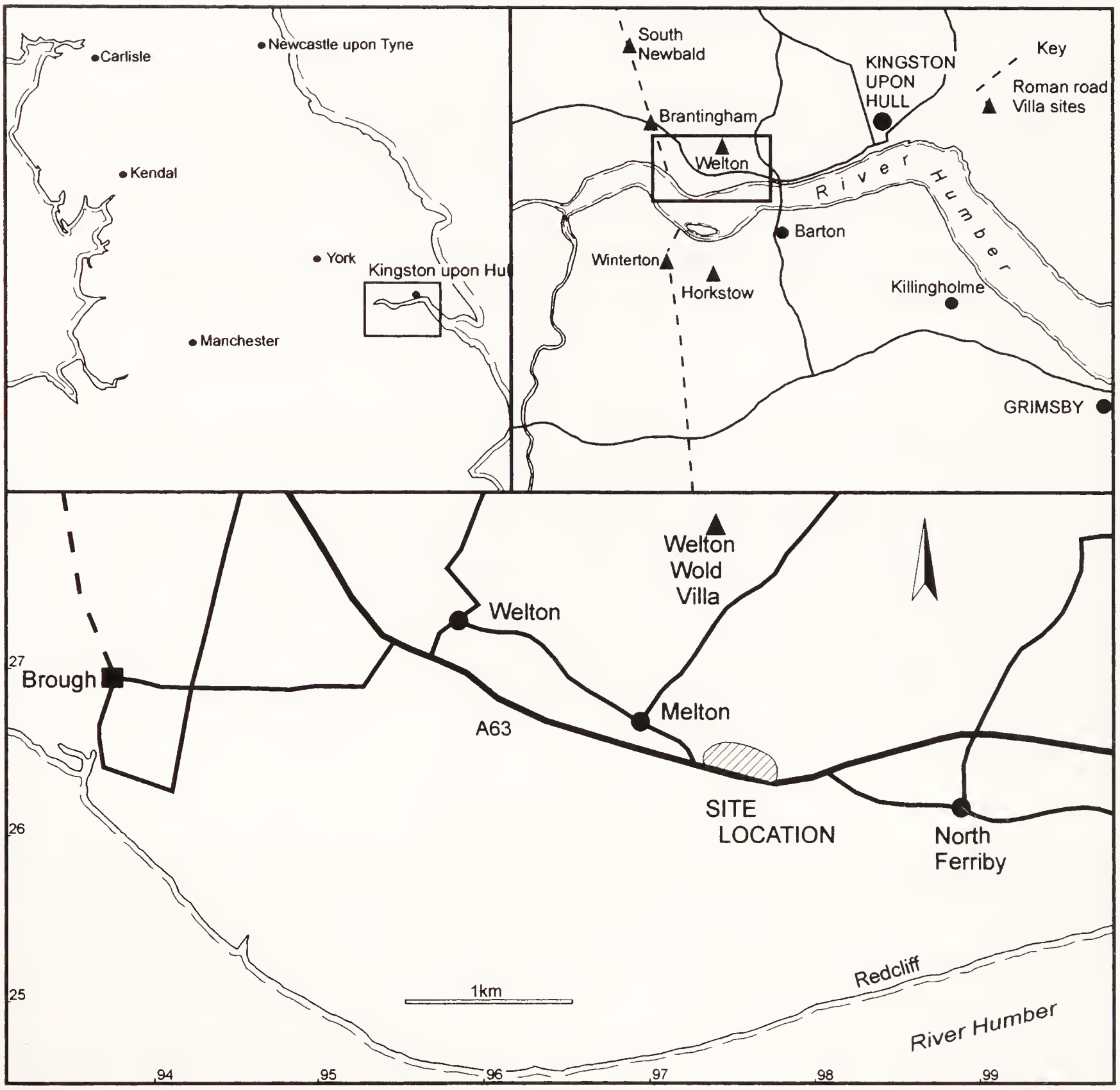

Fig. 1. Location map.

for the Roman road from Lincoln to York (Wacher 1969). Excavation showed that the villa dated from the later second century AD and was still in use in the late fourth century (Wilson 1972; 1973). However, it was evidently preceded by an Iron Age settlement. To the south of Melton, excavations at Redcliff, near North Ferriby, revealed a Romano-British coastal site (Crowther & Creighton 1989), a possible entrepôt.

Aerial photographs taken in 1945, 1976 and 1991 revealed elements of the rural settlement at Melton and this, together with all other pertinent evidence, was assembled in a desktop survey (Dennison 1992), but the most detailed overall picture of the site was provided in early 1993 by a geophysical survey (Geo-Services International 1993), the results of which were used to determine the locations of the trenches outlined here (Fig. 2).

METHODOLOGY AND TECHNIQUES

Trenches were located with specific aims: C, E, G, and H to test intersections of features, F to examine an area internal to a major complex of features, whilst A, B, D, I, and J concentrated on areas where the geophysical survey provided insufficient information. The area to be excavated comprised a total of 1065 m^2, or four per cent of the area affected by the proposed road development at the time, and less than two per cent of the total area of the known site (Johnston 1994).

The 10 evaluation trenches (A–J; Fig. 2) were excavated with the aid of a 360° tracked excavator to remove the topsoil and B horizon (where appropriate) down to the level at which archaeological remains were seen to be preserved. Thereafter, excavation was continued by hand using mattock and shovel, or hoe, spade, or trowel as the need arose. In line with a policy of minimum intervention, large features were usually only sampled, in order to determine characteristics such as profile and depth and also to provide dating material and samples for environmental examination. Pits and postholes were normally half- (occasionally quarter-) sectioned, but where large concentrations of postholes were identified, only a representative proportion were excavated. After stripping, the exposed trenches (and the spoil removed from them) were examined by metal detector and anomalies tagged.

THE TRENCHES

The westernmost trench, Trench A, measured 35 m by 2 m. Trench B was 25 m by 2 m, with two extensions, each 5 m square. Originally L-shaped, Trench C, with arms 10 m by 5 m, was extended to the south by 10 m by 5 m. Trench D, which was found to include no features of archaeological interest, was 10 m by 5 m with its long axis approximately east to west. Trench E was L-shaped with arms 25 m and 15 m long and 5 m wide. Trench F was 15 m by 10 m with a northern projection 10 m by 5 m. Trench G was L-shaped with arms 15 m long, one 5 m and the other 7 m wide. Trench H was L-shaped, with one arm 25 m by 5 m, the other 10 m by 10 m. Trench I measured 20 m by 2 m, whilst Trench J was L-shaped with arms 15 m by 5 m and 10 m by 2 m. Trenches D, I, and J produced no archaeological evidence other than modern agricultural activity.

DESCRIPTION

THE LANDSCAPE

Subsequent to the first geophysical survey, a further one was undertaken in 1995 (Geo-Services International 1995), covering the area to the north of the 'trackway'. The complex landscape at Melton revealed by the air photographic and geophysical survey evidence may be summarised as follows (Fig. 2).

A trio of east–west linear features (Fig. 2, Components 1–3), a possible 'trackway', is accompanied by enclosures on the northern side of the northern feature at the western extremity (a quadripartite enclosure: Fig. 2, 23–8), with traces of further enclosures to the north–west of these (Fig. 2, 19–22). Another was located towards the centre (a triangular enclosure: Fig. 2, 4), and one more towards the eastern end (a rectangular enclosure: Fig. 2, 5).

This 'trackway' is intercepted by another pair of parallel linears (Fig. 2, 6 and 7), on a north–south alignment, the easternmost of which appears to continue to the north, forming the western side of the triangular enclosure. Two more north–south linears cross the southern east–west linear, the eastern one (Fig. 2, 8) carrying on northwards across the 'trackway' and the western (Fig. 2, 9) apparently terminating in its vicinity.

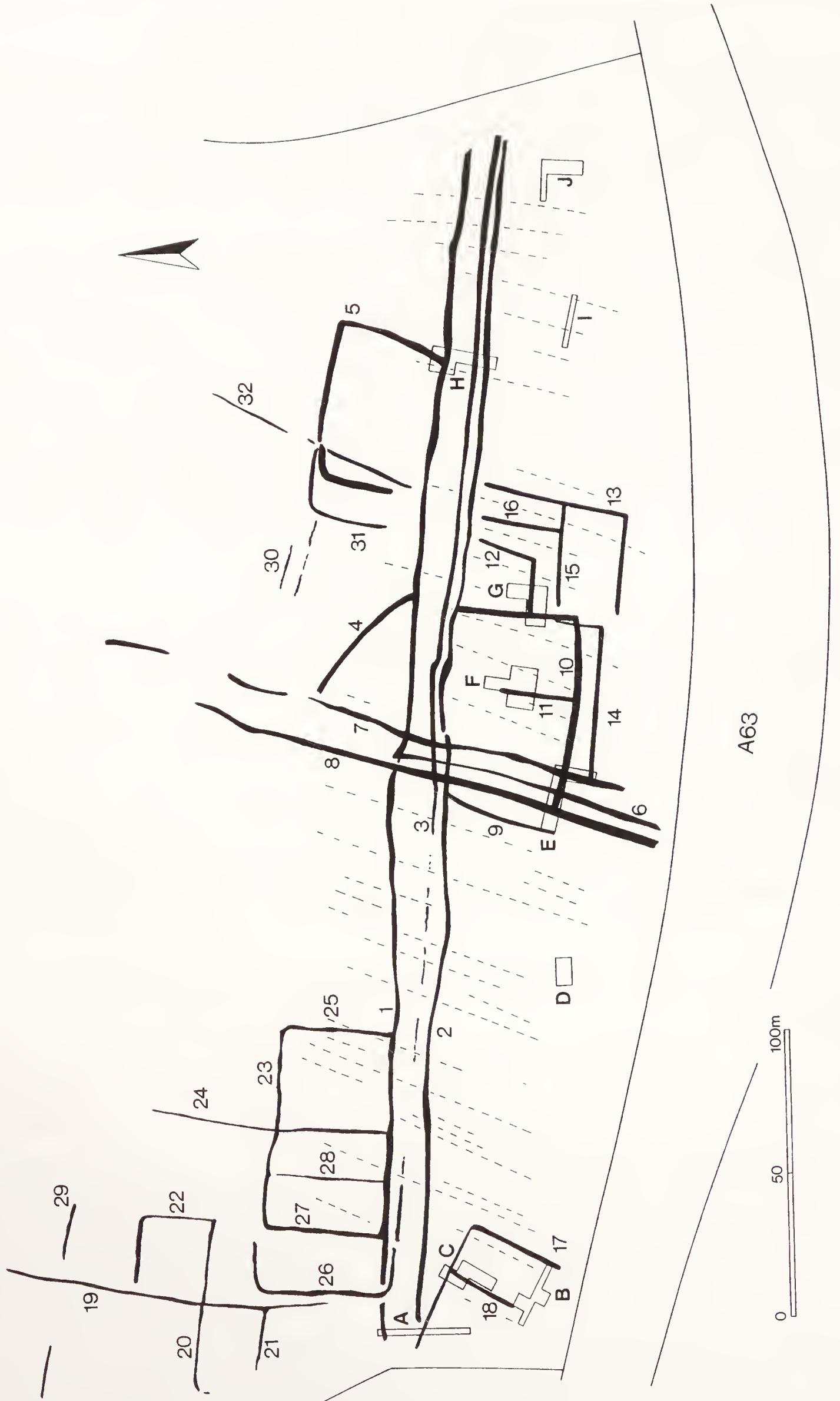

Fig. 2. Geophysical survey results interpretation.

In the angle formed between the central north–south features and the main east–west 'trackway' elements there was a further series of enclosures. A main right-angled linear feature (Component 10) forms two sides of a rectangular enclosure, with a central internal division (Component 11). An apparently subsidiary series of linears form further enclosures immediately to the east, composed of two right-angled features (Component 12 and 13), two east–west components (Component 14 and 15), and a north–south element (Component 16).

At the western extremity of the site, a right-angled corner of an enclosure (Component 17), together with an internal division (Component 18), lie on a different, north–west to south–east alignment that differs markedly from that of the other components of this landscape.

A number of other features which defy the trend of the ridge-and-furrow ploughing may be archaeological in origin, notably two parallel linears (Fig. 2, 30), a possible annexe to Component 5 (Fig. 2, 31), and a south–west/north–east aligned linear (Fig. 2, 32).

It was evident that there was an elaborate sequence of activity at the site, but, prior to excavation, there were few clues to the chronological sequence of the various components.

THE EXCAVATIONS

In the following account of the results of the excavations, group numbers have been emboldened (e.g. structure **085**).

Phase 1: Pre-Roman Occupation

The east–west 'trackway' that was so prominent on the aerial photographs and geophysical survey was only manifested archaeologically as parallel ditches, no traces of a surface or indications of use (such as wheelruts) having survived where it was examined.

At the northern end of Trench A, 1.8 m of a U-sectioned slot or gully (020), 0.52 m wide and 0.26 m deep, was exposed (Fig. 3). Ten metres south of this, the U-sectioned slot 018 (0.5 m wide and 0.35 m deep) crossed the trench from east to west for 1.8 m and was cut by a north–west to south–east ditch (012), part of Component 17 (see below). Slot 018 was Component 2 of the east–west trackway, whilst 020 was Component 1.

The 'trackway' was also examined in Trench H. There, an east–west, U-sectioned, ditch (514), 0.8 m wide and 0.65 m deep, was connected to 504 (Component 5, the easternmost enclosure) by a narrow gully (perhaps a lockspit) and no precise relationship could be established between the two features, suggesting (but hardly proving) contemporaneity (Fig. 9). Immediately south of 514 was another ditch (512), this time V-sectioned and 0.6 m wide by 0.32 m deep, which was paralleled by another (530), U-sectioned and 0.6 m wide by 0.23 m deep, both also on an east to west orientation. Some 11 m away, in the southern extremity of the trench, ditch 507 was 1.85 m wide and 0.8 m deep with a similar profile. Features 512, 514 and 530 can be equated with Component 1 and 507 with Component 2 of the 'trackway'.

In Trench E (Fig. 6) there was a north–south oriented U-sectioned ditch (217), 2.2 m wide by 0.8 m deep (Fig. 10, Section 29). Ditch 217 was paralleled 4 m to the east by 203/225, another V-sectioned ditch (Fig. 10, Section 28), 3.75 m wide and 2 m deep. Ditch 225 was found to have six fills, and none of these could be positively identified as a re-cut. A small U-sectioned ditch (219), exposed over a 1 m length, 0.3 m wide and 0.26 m deep, was found to run parallel to the lip of 211, some 4 m to the south, although the nature of its relationship with 203/225 was unclear. Ditch 215 can be identified with Component 6, whilst 203/225 was Component 7.

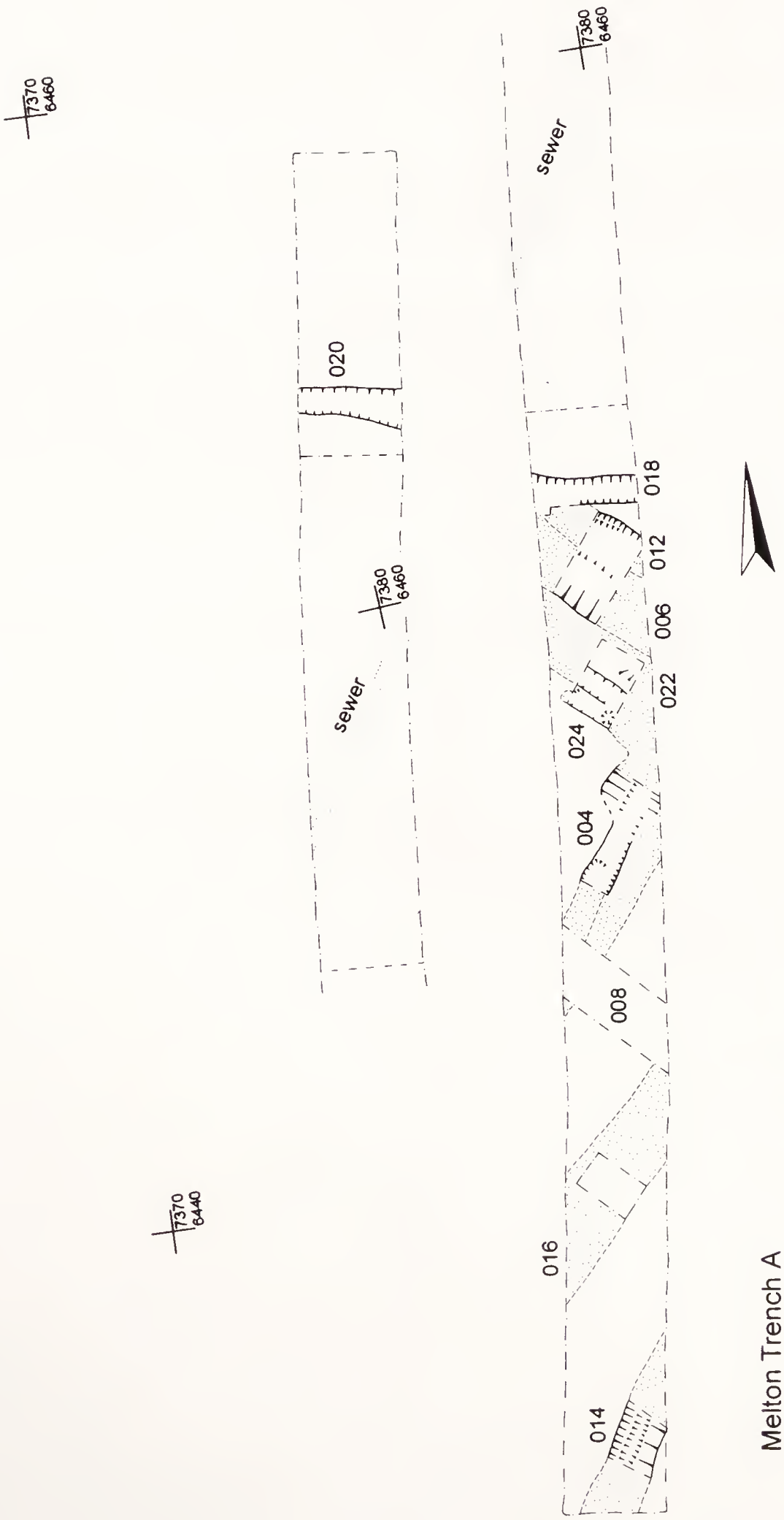

Fig. 3. Plan of Trench A.

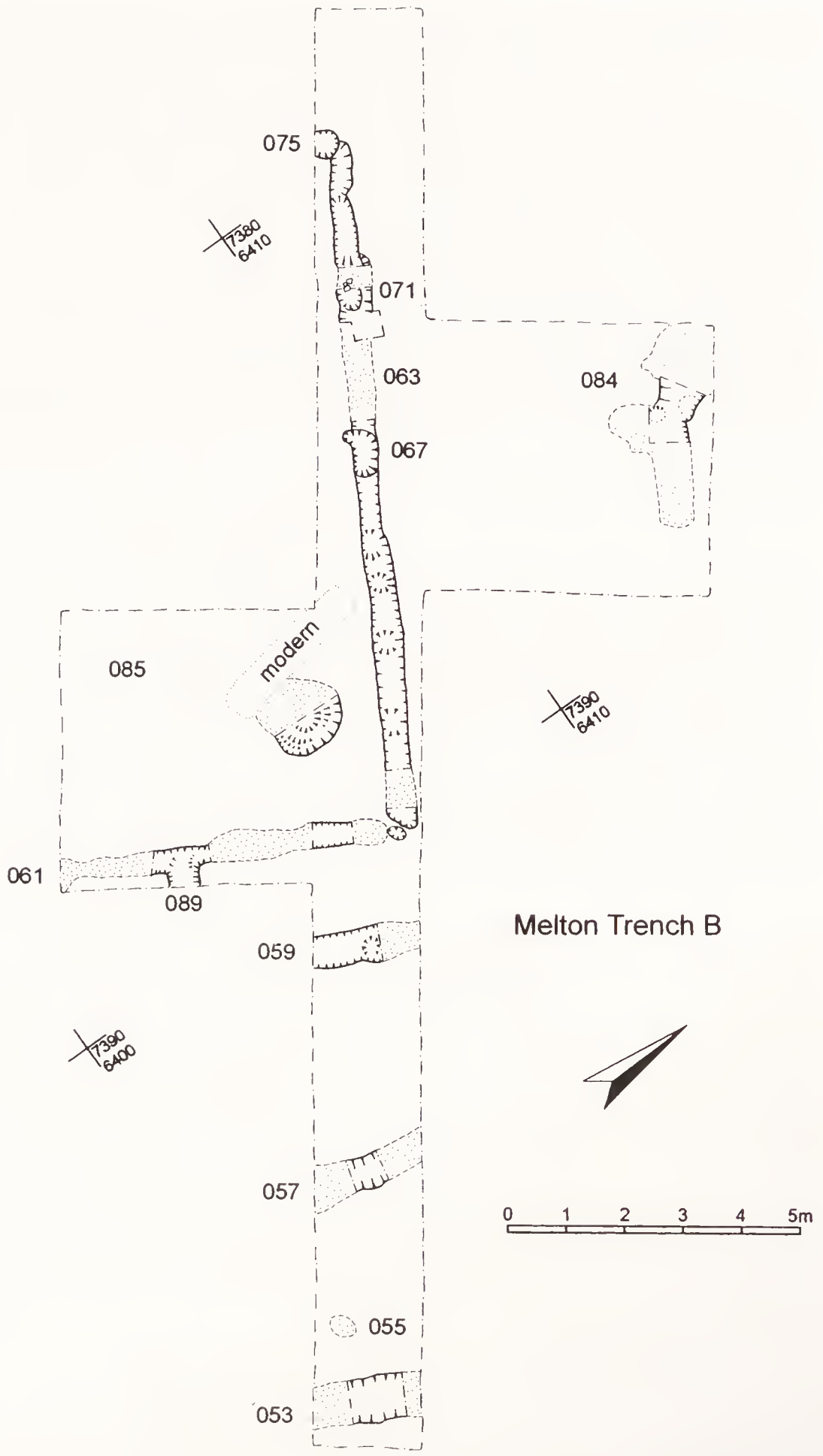

Fig. 4. Plan of Trench B.

In Trench F, a major complex of postholes and pits (Fig. 7) revealed at least two circular huts (**801** and **802**). No relationships could be determined between any of the elements **801**, **802**, and the (presumably) later **810** (see below), which have been isolated purely on the grounds of alignment and positioning. However, the proximity of circle 801 to 802 suggests that these two were not contemporary. Circle **801** measured 5.5 m in diameter and included postholes 344, 324, 322, 360, 362, 320, 372 and pits 887 and 804. Postholes ranged between 0.25 m in diameter and 0.18 m deep (324) and 0.4 m diameter and 0.2 m depth (320), with the larger pits 804 and 887 possibly forming part of an entrance porch. Circle **802** was 7.6 m in diameter and included postholes 842, 889,

827, 885, 875, 846, 851, 848, and 883, as well as pit 807, which may be all that remains of an entrance porch. Pit 812 appeared to be central to structure **802**.

A number of features within the groups could not readily be identified as belonging to them, and these too may have formed parts of structures, but remain unintelligible in the context of the limited area opened for excavation.

Elsewhere, in Trench C (Fig. 5), a group of (unexcavated) postholes (**120**) may have belonged to a similar roundhouse.

At the north end of Trench H, a large V-sectioned ditch (504), 1.9–2.3 m wide and 1 m deep, running north to south turned 90° to head east to west (Fig. 11, Section 53). There was a small sub-oval pit (521), 0.8–1.2 m in diameter and 0.22 m deep, in the angle of the ditch and a posthole (528), 0.23 m in diameter and 0.07 m deep, in the north–west corner of the trench. The sub-rectangular pit 516, measuring 1.2 m north–

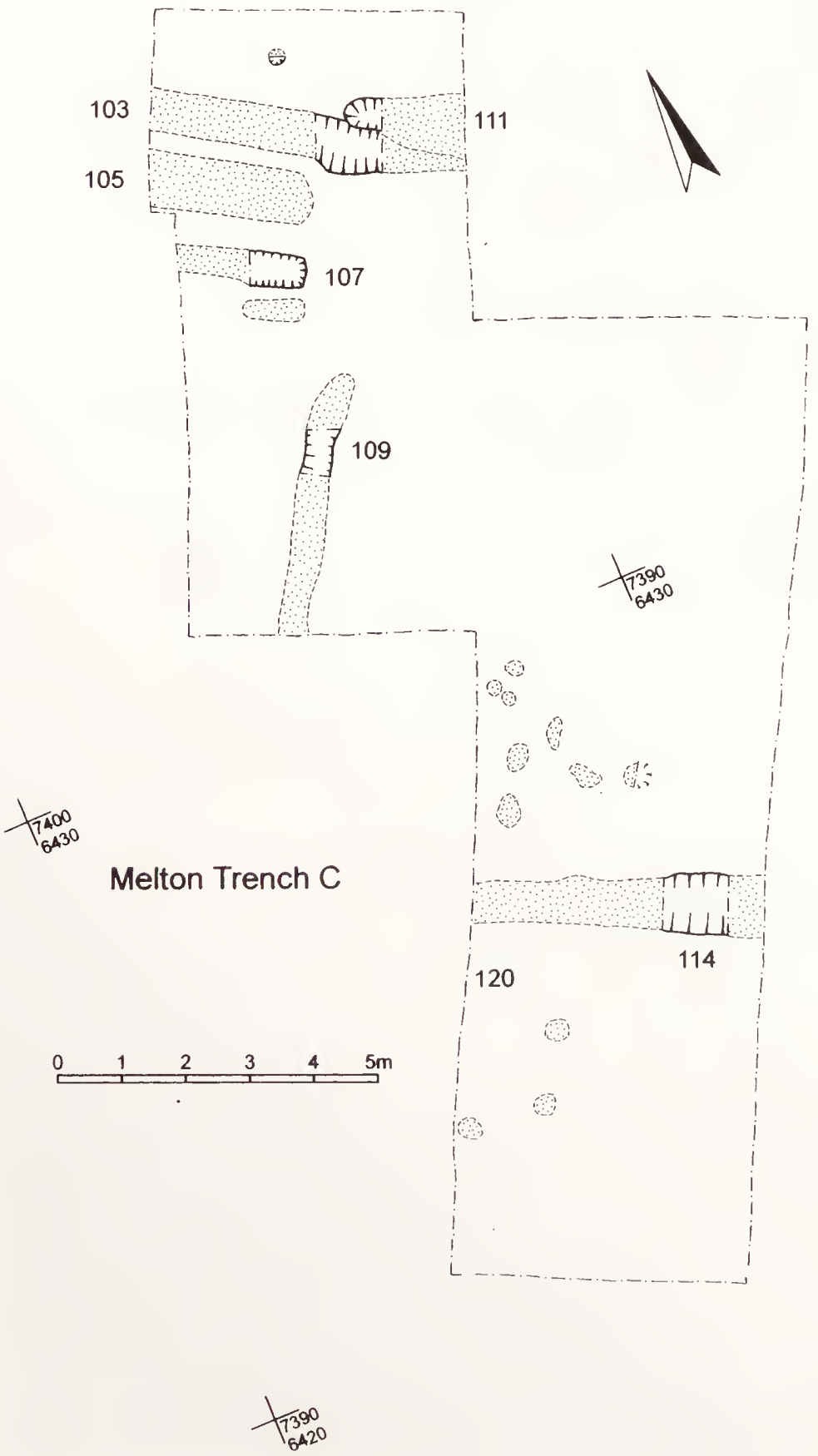

Fig. 5. Plan of Trench C.

south by 0.25 m east–west, and 0.43 m deep, contained a crouched inhumation (515), oriented approximately north to south, which was recorded but not removed.

Trench H was the one place where some depth of stratigraphy was noted, for beneath the A and B horizons (500 and 501 respectively), there was a possible buried B horizon (505), which was cut by some of the archaeological features (521 and 504). Pit 521 was seen to be covered by a midden layer (502, containing pottery, bone, and marine shells) which extended around the sections of the northern end of the trench, before disappearing further to the south (probably because it had been removed by ploughing). It was difficult to determine for certain whether layer 502 had been cut by enclosure ditch 504, but the upper fill of the latter (in the area removed by machine) was very similar in nature and content and it is possible that they are both part of the same deposit. No relationship could be established with burial pit 512.

Ditch 504 was part of the sub-rectangular enclosure defined by Component 5 and the fact that the 'trackway' ditches 512, 514, and 530 (Component 1) appear to respect if may indicate that the enclosure pre-dated the 'trackway'.

Out of the major linear features, the east to west 'trackway', represented by ditches 018 and 020 in Trench A and 514, 512, and 507 in Trench H, was almost certainly pre-Roman, insofar as no Roman period material was found in association with it. Excavation highlighted the complexity of this major landscape feature, but the limited nature of the examination rendered unwise attempts at detailed phasing and interpretation. Contemporary with this was the large enclosure (Component 5), which shows many similarities with 'droveway settlements' such as Bell Slack (Branigan 1984, Fig. 2.2). It should be noted that the line of the east–west trackway is continued by Melton Old Road to the west and Melton Road to the east (south of the A63).

It seems likely that the north–south feature, defined by Components 6 and 7, pre-dated the east–west 'trackway', given that the Roman period features (in particular Component 10) appear to use Component 1 as a northern boundary.

The presence of a crouched inhumation in Trench H, taken together with other, disturbed, fragments of human burials from the central and eastern trenches (and perhaps the bone of a buzzard — a scavenger), may indicate the proximity of an Iron Age cemetery, since trackways of the kind identified at Melton were frequently accompanied by such burial grounds in the pre-Roman period (*cf.* Dent 1983, 37–38).

Enclosures to the north of the western enclosure are clearly associated with the east-west trackway, but since they were outside the line of the proposed road corridor, these were not examined by excavation.

Phase 2: Early Roman period Occupation

Trench E contained a 5.2 m length of a north to south aligned U-sectioned ditch (205), 0.95 m wide and 0.2 m deep, running parallel to — and some 5 m to the west of — a much larger V-sectioned ditch (207; Fig. 10, Section 34), 3.7 m wide and 1.9 m deep, which was examined at its junction with a similarly profiled east to west ditch (211/213; Fig. 10, Section 36), which in turn was 2.8 m wide and 1.9 m deep (Fig. 6. Both 207 and 211 contained three matching fills each (232, 231, 206 and 234, 233, and 210 respectively — primary, secondary, and tertiary) and it was established that 207 and 211 were contemporary and that 211 cut 217.

Ditch 205 was Component 10. Although the relationship between 203/225 and 219 was uncertain, 219 could clearly be identified with Component 14.

Ditch 509 in Trench H (Fig. 9) was V-sectioned with a round base, 1.8 m wide, and 0.76 m deep. Its secondary fill (508) differed from that of the nearby and parallel 507

insofar as it had a markedly heterodox fill (a silty loam), those of 507 being sandier. This feature could be identified with Component 9.

A putative rectangular structure in Trench F, **810**, measured 8 m north to south and at least 10 m east to west (Fig. 7). Postholes and pits associated with this included 837, 879, 883, 827, 821, 889, 877, and 873; they seem to have been larger to the north and south (e.g. 837, 0.8 by 0.64 m) than to the west. Its place within the phasing scheme is based upon the assumption that it post-dates the hut circles because of its shape and the fact that it was cut by the later Roman linear feature 304/383 (see below).

The central enclosure lay on the eastern side of one of the linear elements of the north to south 'trackway'. There seems to be a pattern whereby large ditches are paralleled by less substantial ones (e.g. 207 and 205, 213 and possibly 219) and there may also be indications that the major earthworks had been carefully laid out before construction, as indicated by the presence of at least one lockspit (noted at the junction of ditches 412 with 405). The latest ditches had been left open for some time and show a clear progression in the ceramics in the successive fills (from pre-Roman through to Roman). Within the enclosure, there were clear signs of Roman-period occupation, but this in turn overlay several phases of earlier, pre-Roman settlement.

Phase 3: The Roman Period

A narrow, U-sectioned ditch, 215, 0.3–0.5 m wide and 0.27 m deep, was recut on the line of 217 in Trench E, but this was the only later activity identified in that trench. In Trench F (Fig. 7), a central V-sectioned ditch, 1.15–1.25 m wide and about 0.5 m deep, oriented north to south (304/383) cut two pits (385 and 387; Fig. 11, Section 55), 1 m and 0.8 m wide, and 0.4 m and 0.3 m deep respectively, and was in turn cut at the north end by a large circular pit (379; Fig. 11, Section 40), 1.7 m in diameter and 0.57 m deep. The fills of both 304/383 (which was traced for a length of 11 m) and 379 produced Roman-period finds (including a quern fragment in fill 303). Another, smaller, circular pit (310), 1.45 m in diameter and 0.85 m deep, was located only 1 m to the north of this (Fig. 11, Section 19). There was a 3.6 m long, 0.5 m broad, and 0.12 m deep slot (312) oriented north–east to south–west next to 310. Pit 379 also cut a 5 m length of a north-west to south–east oriented slot (381), 0.55 m wide and 0.21 m deep, which formed a right angle with slot 376 (which was 0.6 m wide and 0.06 m deep, and traced over a length of about 5 m). To the north of this complex of features, an east to west slot (389), 0.4 m wide and up to 0.14 m deep, with vertical sides and a flat bottom, terminated in an oval postpit (392), 1.05 m long and 0.35 m deep, containing a postpipe (805; Fig. 11, Section 47). This clearly formed part of a structure. In the west of the main area of the trench, the terminal and 3.4 m of a U-sectioned east-west ditch (306), 0.84 m wide and 0.32 m deep, was located.

A large, V-sectioned ditch (405; Fig. 11, Section 31) in Trench G was cut by later (medieval or post-medieval) plough activity. Ditch 405 was 2.95 m wide and 1.48 m deep and exposed over a length of 7.25 m within the trench (Fig. 8). Its fills (404, 406, and 407) were particularly rich in Roman period finds, both ceramic and bone (and including a quern fragment: see Table 1), suggesting a concentration of rubbish disposal activity. On its east side, another ditch (412), irregular in section and 1.8 m wide by 0.7 m deep, ran towards it at right-angles, with only a small slot 2 m long (possibly a lockspit) linking the two; no precise relationship could be established but there was a strong possibility that the two features were contemporary, since both lay beneath 404, the final fill of 405. A circular pit (420), 0.9 m in diameter and 0.45 m deep, lay on the north rim of 412, but the relationship between the two could not be established. Immediately north of the pit was a right-angled slot, 418, which measured at least

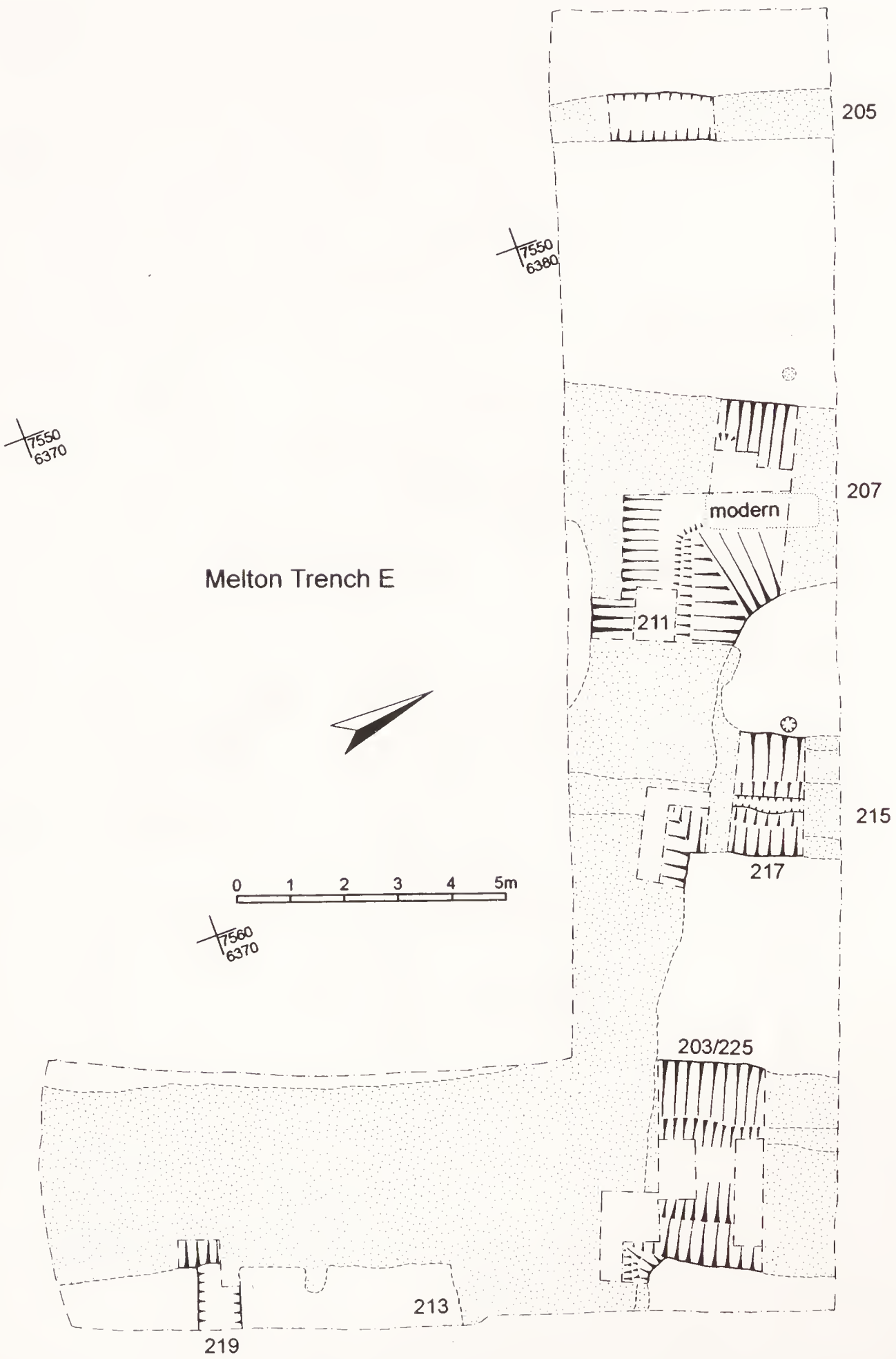

Fig. 6. Plan of Trench E.

3.2 m north–west to south–east and 5.2 m north–east to south–west. It proved to be 0.25 m deep.

The pottery from ditch 405 shows a succession of assemblages in its fills, ranging from Claudio-Neronian through to the second century. The animal bone from the same ditch was predominantly cattle, but with substantial amounts of sheep/goat and horse too. Little other environmental evidence was recovered, but what there was hinted at domestic rubbish disposal.

Fig. 7. Plan of Trench F.

TABLE 1: Locations of quernstone fragments

Trench	Context	Type
F	unstratified	beehive upper
F	unstratified	beehive upper
F	303	upper
G	unstratified	lower
G	404	upper
H	501	upper

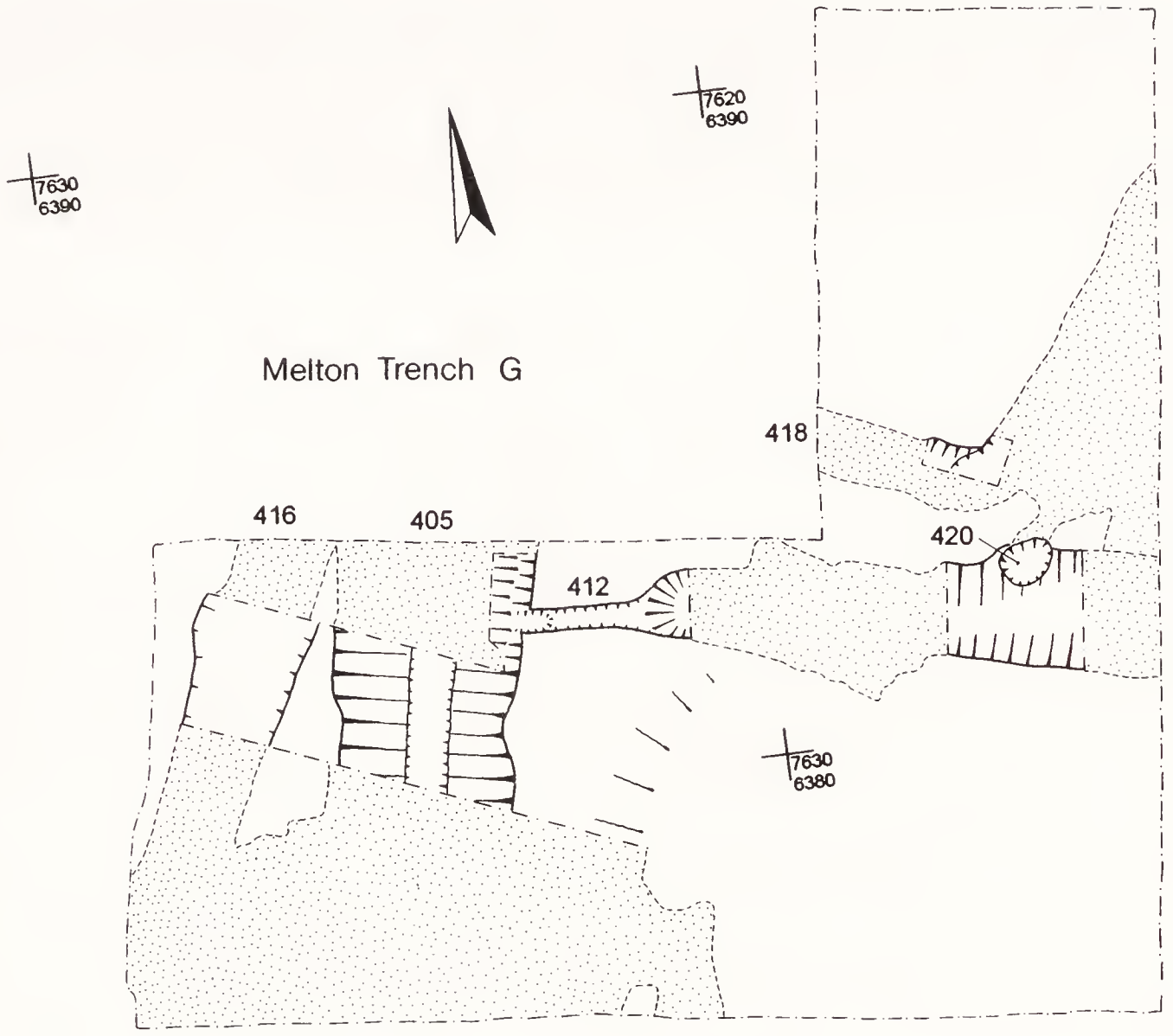

Fig. 8. Plan of Trench G.

Ditch 304/383 could be equated with Component 11 of the landscape and this accorded well with its being contemporary with the central enclosure boundary (Component 10), which was itself examined in Trench G as ditch 405. The spur ditch, 412, therefore formed part of Component 12.

Phase 4: Medieval Occupation

In Trench A, the pre-Roman slot 018 (Component 2 of the east–west trackway) was cut by a U-sectioned north–west to south–east ditch (012, 0.48 m deep and 2.3 m long) which can be identified with Component 17 of the westernmost enclosure (Fig. 3). This was in turn cut by a 2.25 m length of the U-sectioned ditch 006 (0.92 m wide and 0.39 m deep) on the same alignment. Parallel to these last two features were a pair of slots, 022 to the north (U-sectioned, 0.25 m wide, 0.34 m deep) and 024 (U-sectioned, 0.6 m wide, 0.24 m deep) immediately south of it. These formed a right-angled junction with a 3 m-length of ditch (004), which was also U-sectioned, 0.54 m deep, 0.8 m wide at the top, and aligned north–east to south–west. At the southern extremity of the trench, a V-sectioned ditch, 014 (0.52 m wide and 0.31 m deep), was similarly aligned north–east to south–west and exposed for a length of 3.3 m.

Trench B uncovered the remains of a medieval structure (Fig. 4). Originally measuring 25 m by 2 m, two extensions were added to this trench, each 5 m by 5 m. A structure

(**085**) oriented east to west and enclosing at least 72 m^2 was identified within this area, comprising a U-sectioned slot (063), 0.45 m wide, 0.16 m deep, and 12 m long, which formed its northern side (Fig. 10, Section 4), and a U-sectioned return to the east (061), at least 5.7 m long, 0.4 m wide, and 0.25 m deep; 0.3 m of an eastern spur (089), U-sectioned, 0.45 m wide and 0.24 m deep, suggested that this was not a simple rectangu-

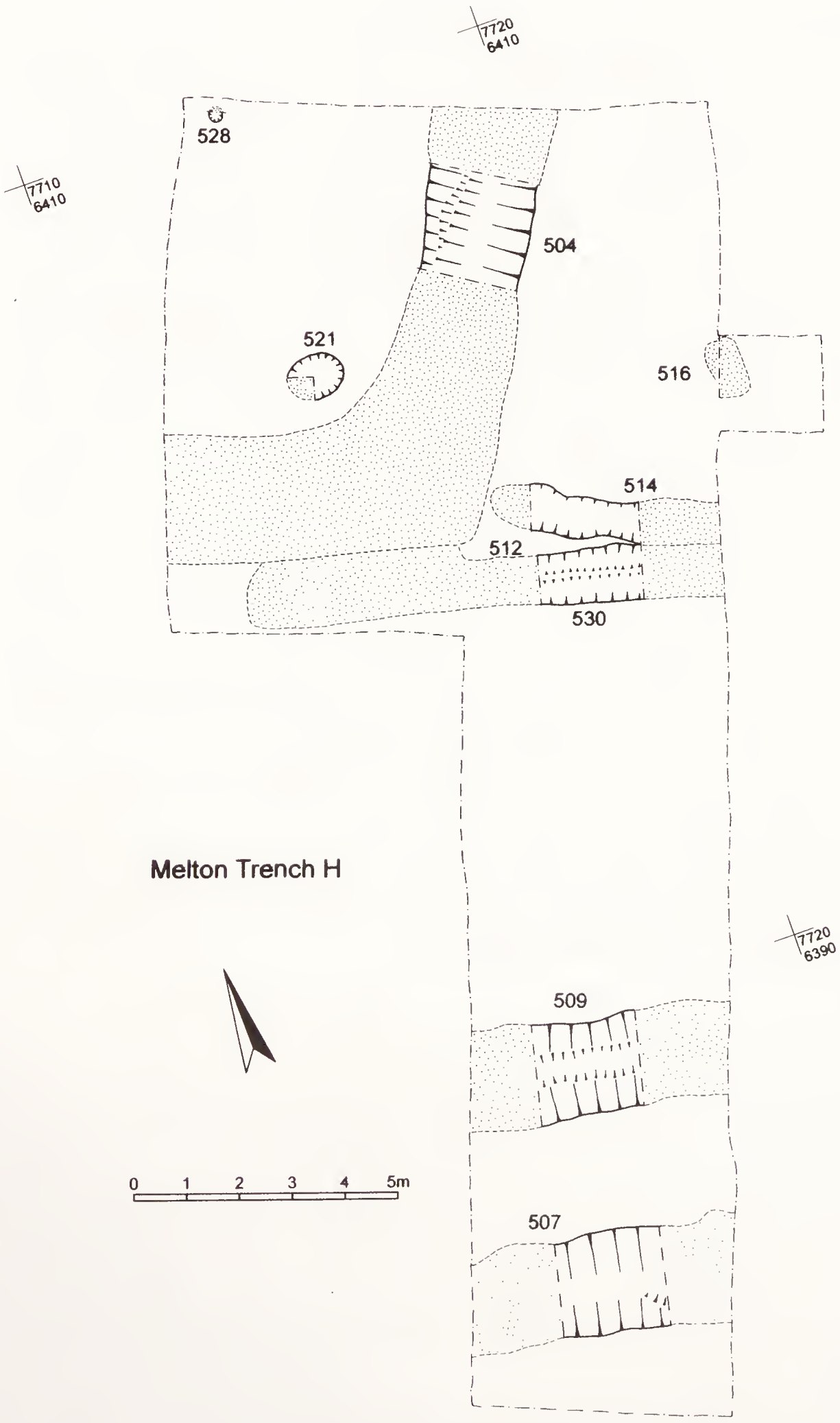

Fig. 9. Plan of Trench H.

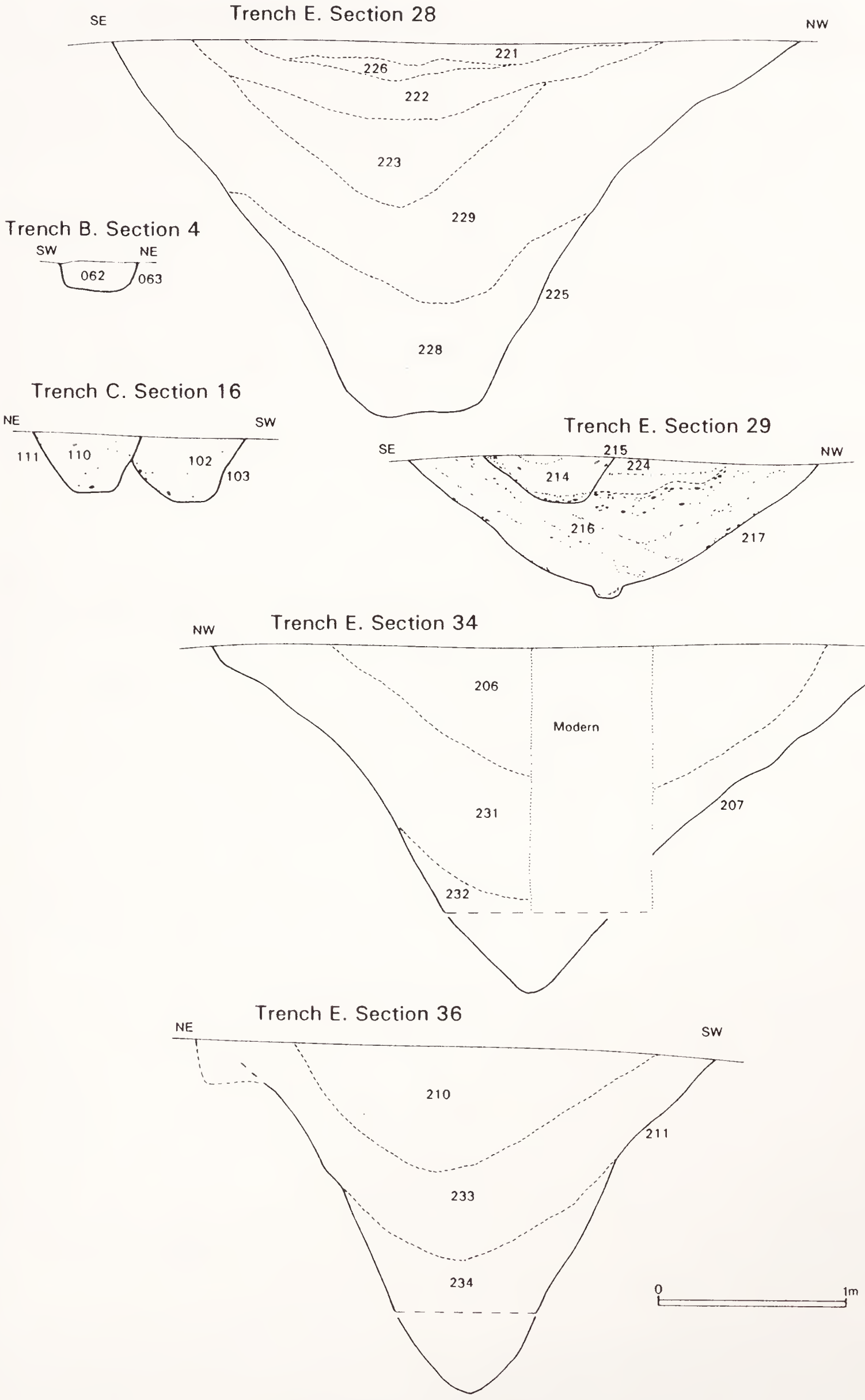

Fig. 10. Sections 4, 16, 28, 29, 34 and 36.

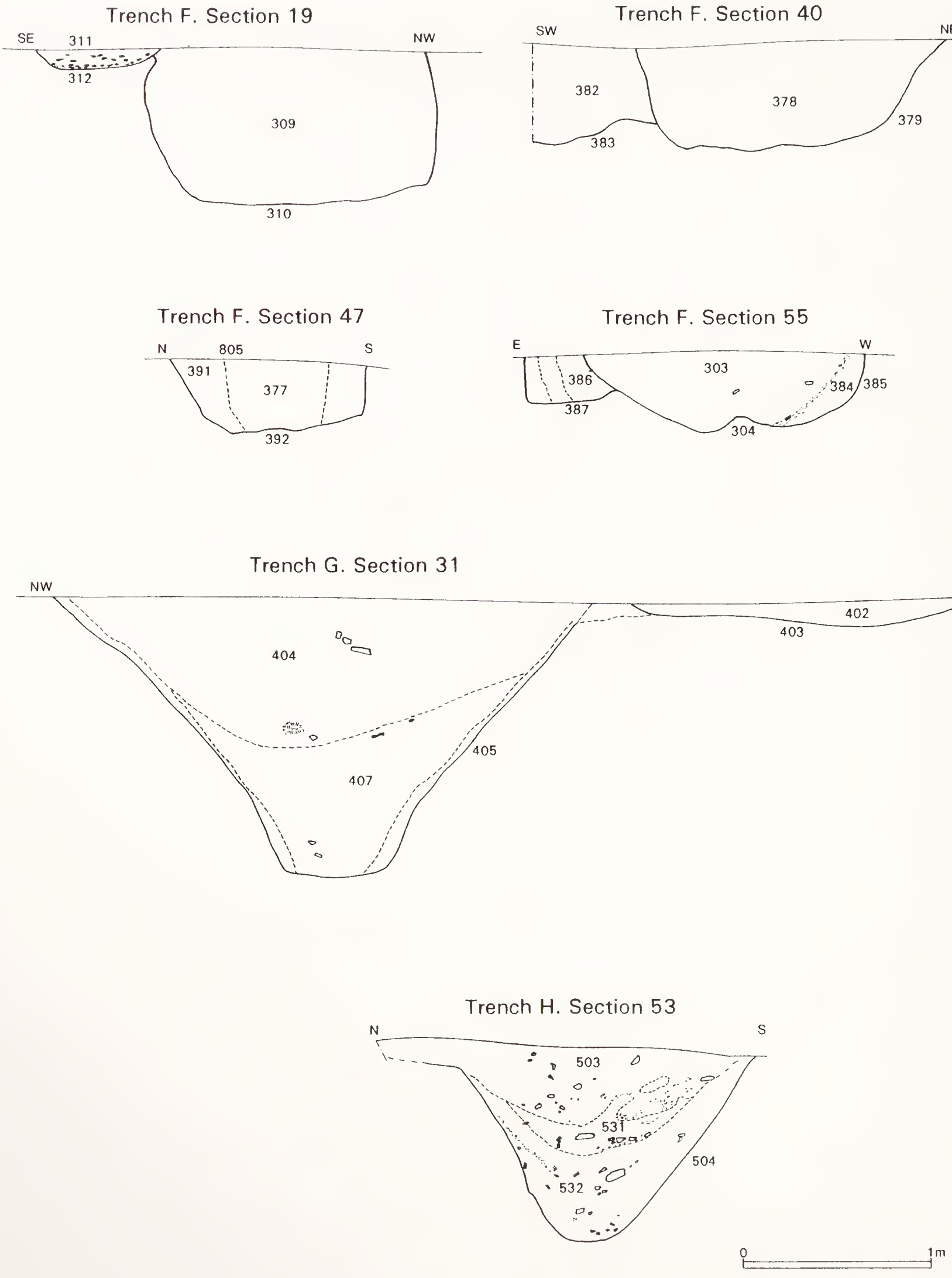

Fig. 11. Sections 19, 31, 40, 47, 53 and 55.

lar building. A western return was probably represented by the U-sectioned terminal of a post trench (075), 0.4 m wide and 0.35 m deep. Overall, the structure measured at least 12 m by at least 6.1 m. Although no postholes or post impressions, as such, were recog-

nised, feature 063 was characterised by having a series of basal scoops along its length which might represent the bases for structural uprights. Within the north–east corner of the building was a conical pit (087), which included animal bone in its fill (086), and may represent a refuse pit.

East of slot 061, and running parallel to it, was a 1.8 m length of shallow, flat-bottomed gully (059), 0.48 m wide, and 0.06 m deep. Another similarly sectioned gully (057), 0.55 m wide and 0.07 m deep, was oriented north–west to south–east, whilst a further 1.8 m length of ditch (053), at the extreme east end of the trench, also U-sectioned but with a concave bottom, was oriented north to south; this was 0.76 m wide and 0.36 m deep. Just to the west of this was a circular posthole (055), 0.4 m in diameter (not excavated). To the north of structure **085**, a semi-circular slot (084) of uncertain function was located. This was 0.6 m wide, 0.18 m deep, and traced for a length of 3.5 m.

Ditch 053 is probably the eastern boundary of the western enclosure (Component 17) and the coincidence of alignment of structure **085** may suggest that the two are contemporary.

Medieval pottery was recovered from the construction trench of structure **085**, but no environmental samples worthy of study were produced, other than some animal bone (mostly sheep/goat with some cattle).

At the north end of Trench C, a 4.9 m length of ditch (103), 0.7 m wide, 0.34 m deep, and oriented east to west, was cut by the terminal of another, similarly oriented, one (111; Fig. 10, Section 16), which was 0.57 m wide and 0.32 m deep. The western terminal of another ditch (105), at least 2.5 m long and 0.85 m wide (not excavated), lay immediately to the south, and this was matched by yet another such terminal (107), 0.54 m wide and 0.14 m deep, south of that. All of these that were excavated proved to have flat-bottomed, U-sectioned profiles. This series of ditches belonged to Component 17 and the fill of 107 contained oats, suggestive of a medieval date.

An irregularly sectioned north to south oriented ditch (109), 0.5 m wide and 0.15 m deep, observed for a length of 3.7 m, terminated in the middle of the original trench. In the southerly extension, a U-sectioned east to west ditch (114), 0.83 m wide and 0.22 m deep, was traced over at least 4 m.

Ditch 103 clearly pre-dated 111 and, together with 105 and 107, forms the northern boundary of the western enclosure. Likewise, 109 corresponds with the north to south internal division visible within that enclosure (Component 18), but ditch 114 cannot readily be discerned on the geophysical plot.

The western enclosure (Component 17) was divided internally by Component 18. The compound thus created contained at least one rectangular, medieval, building, but there were hints that this overlay earlier occupation, probably pre-Roman. There is a remote possibility that the medieval material may have entered the archaeological record as contamination, but comparison over all of the trenches suggests that this is an unlikely interpretation. Certainly, the presence of oats (which are virtually unknown in early Roman contexts) in the fill of Component 18 (ditch 107), combined with an alignment that does not respect the other anthropogenic components of the landscape (with the exception of the ridge-and-furrow ploughing), is strongly suggestive of a similar, medieval, date for this enclosure. The possibility must also be considered that this represents the eastern extremity of the medieval village of Melton.

INTERPRETATIVE DESCRIPTION

The excavations outlined above have served to provide some indication of the phasing of the landscape features detailed by the geophysical survey (Fig. 12). Whilst no traces of embankments were recovered by excavation, it is not unreasonable to expect at least

some of the major ditch features to have been accompanied by upcast mounds of some kind. The molluscan evidence suggests that these ditches were not permanently water-logged, and that is consistent with the well-drained nature of the subsoil.

As was the case elsewhere in the region (Dent 1988), there are very evident signs of continuity in the landscape at Melton between the late pre-Roman Iron Age and the Roman period. Ditch 207 seems to be shadowing the north to south ditches 217 and 203/225, presumably because they were still visible at the time of its construction. The signs of pre-Roman occupation (round houses) being superseded by Roman-type structures (rectangular post-in-trench) point towards continuity of function and place. Such indications of continuity are especially interesting in the light of evidence from sites such as Blealands Nook, Driffield, Rillington, and Garton Slack where it does not appear to have been the case (Branigan 1984, 27), whereas Glebe Farm near Barton-upon-Humber, whilst slightly later than Melton, *does* display similar evidence for continuity (Steedman 1992).

A suggested evolution for the landscape, derived from the phasing and chronological information obtained by excavation, might be as follows (although this is almost certainly an oversimplification of events and some unexcavated features may be wrongly ascribed to a phase; see Figs 2 and 12).

A north–south linear feature, possibly a boundary (Components 6 and 7: the ditches seem too large and too close together to belong to a trackway) was superseded by an east–west trackway (Components 1 and 2) with dependent enclosures to the north (Components 3 and 5; possibly 4 too, utilising the still partly existing Component 7?) and there was a cemetery somewhere in the immediate vicinity of Component 5.

The second main phase of activity of the site saw a new north–south linear (Component 8) respecting the earlier boundary and presumably fulfilling a similar function. The line of the northernmost 'trackway' ditch (Component 1) was retained and (using the right-angled Component 10) an enclosure formed in the angle between it and Component 8, with a smaller dependent enclosure to the east (Component 12).

A further, third, stage in the development of the landscape came with the construction of Component 9 and, parallel with it, a small re-cut on the line of Component 6. Components 14 and 13 then defined a new, larger, rectangular enclosure within the angle of Components 2 and 9, with internal divisions marked by Components 11, the north–south part of Component 10 (which appears to have been retained in use here) and Components 12, 15, and 16.

The fourth, medieval, stage (unlike its predecessors) showed no signs of continuity with the earlier landscape and this was the enclosure comprising Components 17 and 18.

The first phase is undoubtedly pre-Roman late Iron Age in date, but the second fits easily into the transitional early Roman period, Roman influence being manifested by the change from circular huts to rectangular structures in the central enclosure. Other rural sites in the region, such as Chase Hill Farm at Killingholme, illustrate the preference for rectangular structures in the Roman period (Evans 1991). The third phase may belong to well after the arrival of the Romans north of the Humber in the early Flavian period and lasted until the middle of the second century. The fourth phase, on the evidence of the pottery, can be assigned to between the twelfth and fourteenth centuries.

The economic evidence from the site is, to some extent, ambivalent. Whilst there is clearly change in the nature of the pottery used at the site (probably reflecting the proximity of the entrepôt site at Redcliff), in the proportions of animals consumed there, and even in the types of structures used, the theme of continuity appears to be reflected in both the molluscan evidence and the overall disposition of the site. The botanical remains do not allow a decisive statement about the nature of the land use, whether as arable or pasture. The evidence for cereal processing (quern fragments, weeds of

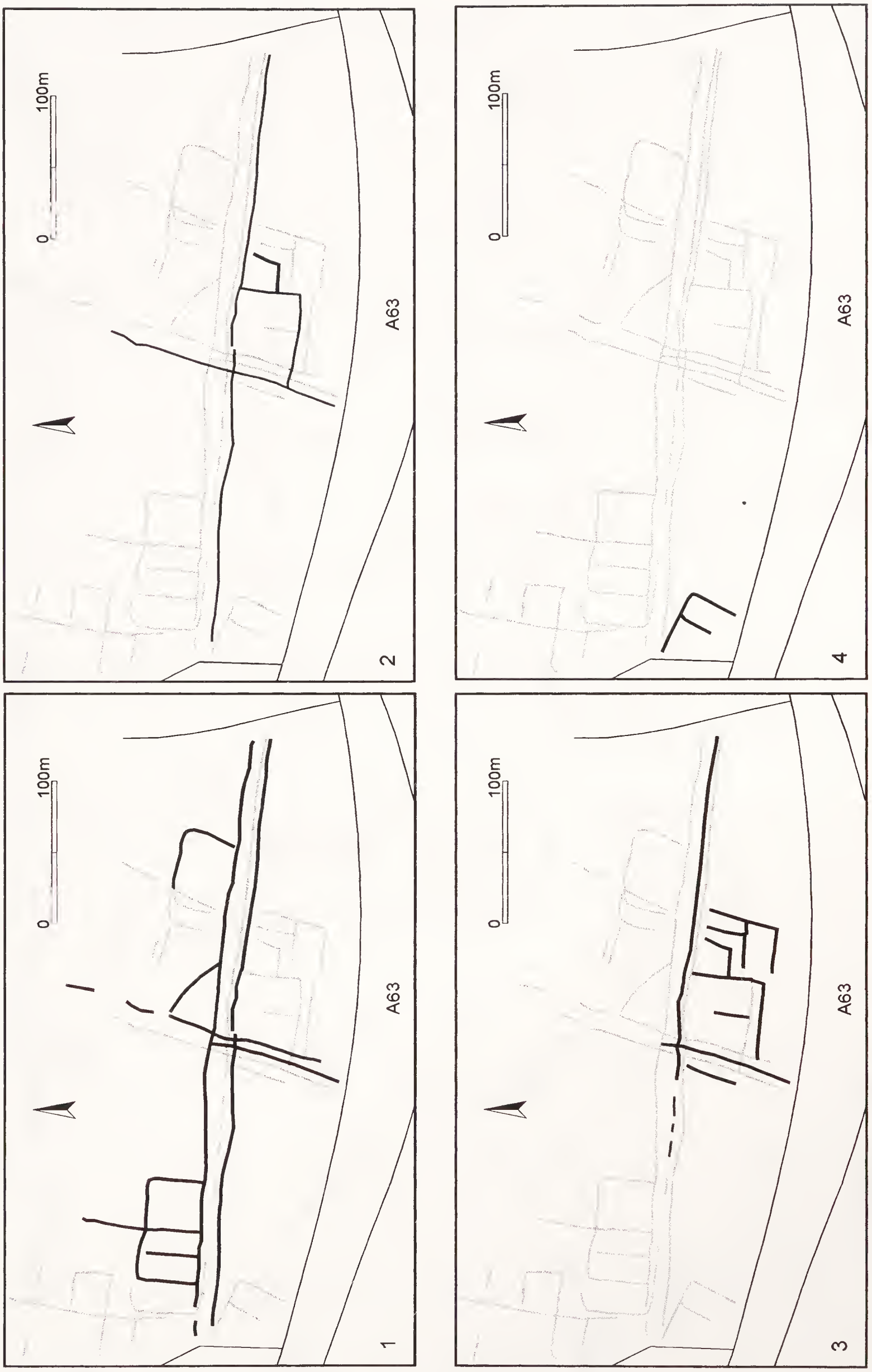

Fig. 12. The four suggested phases of landscape development.

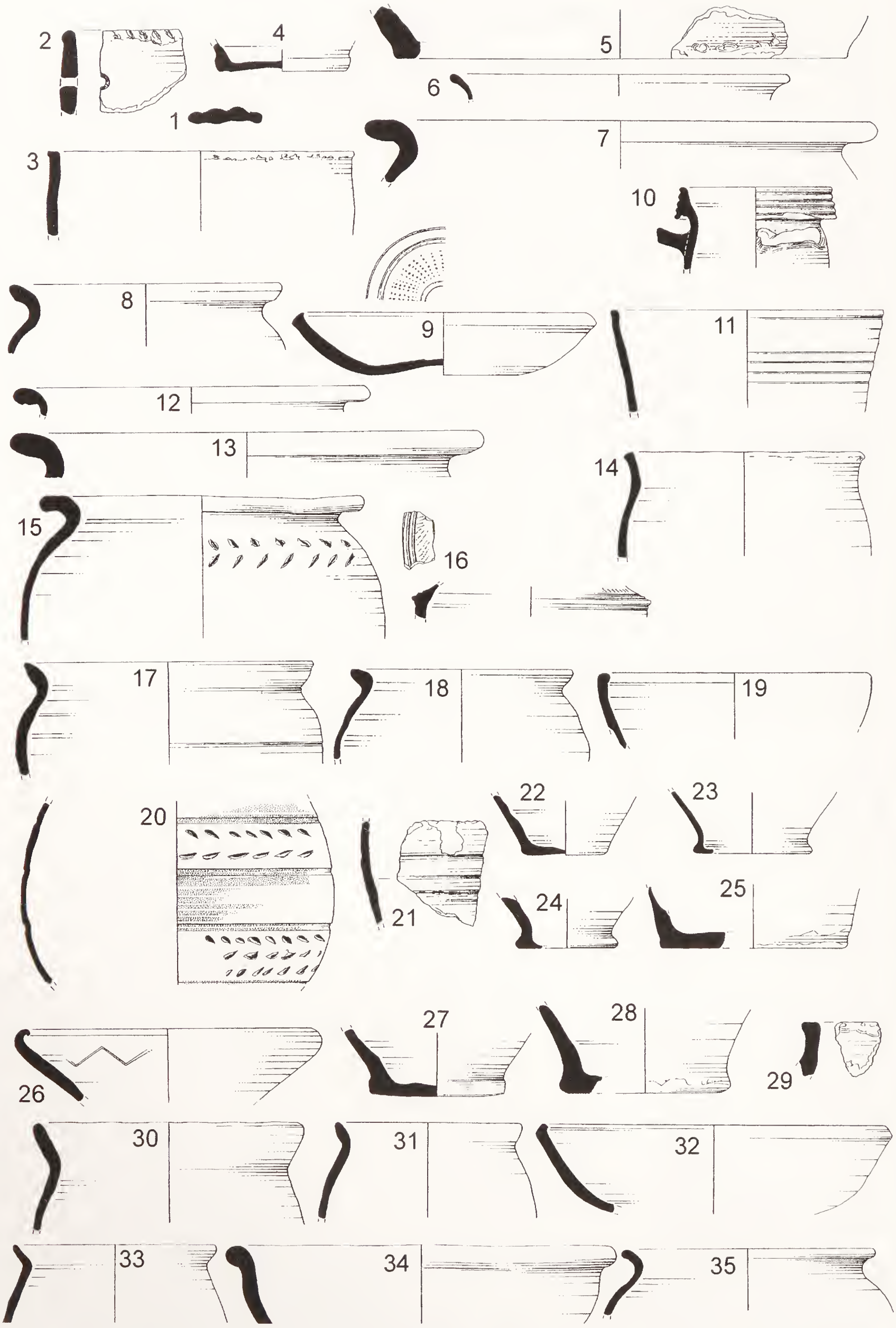

Fig. 13. The pottery.

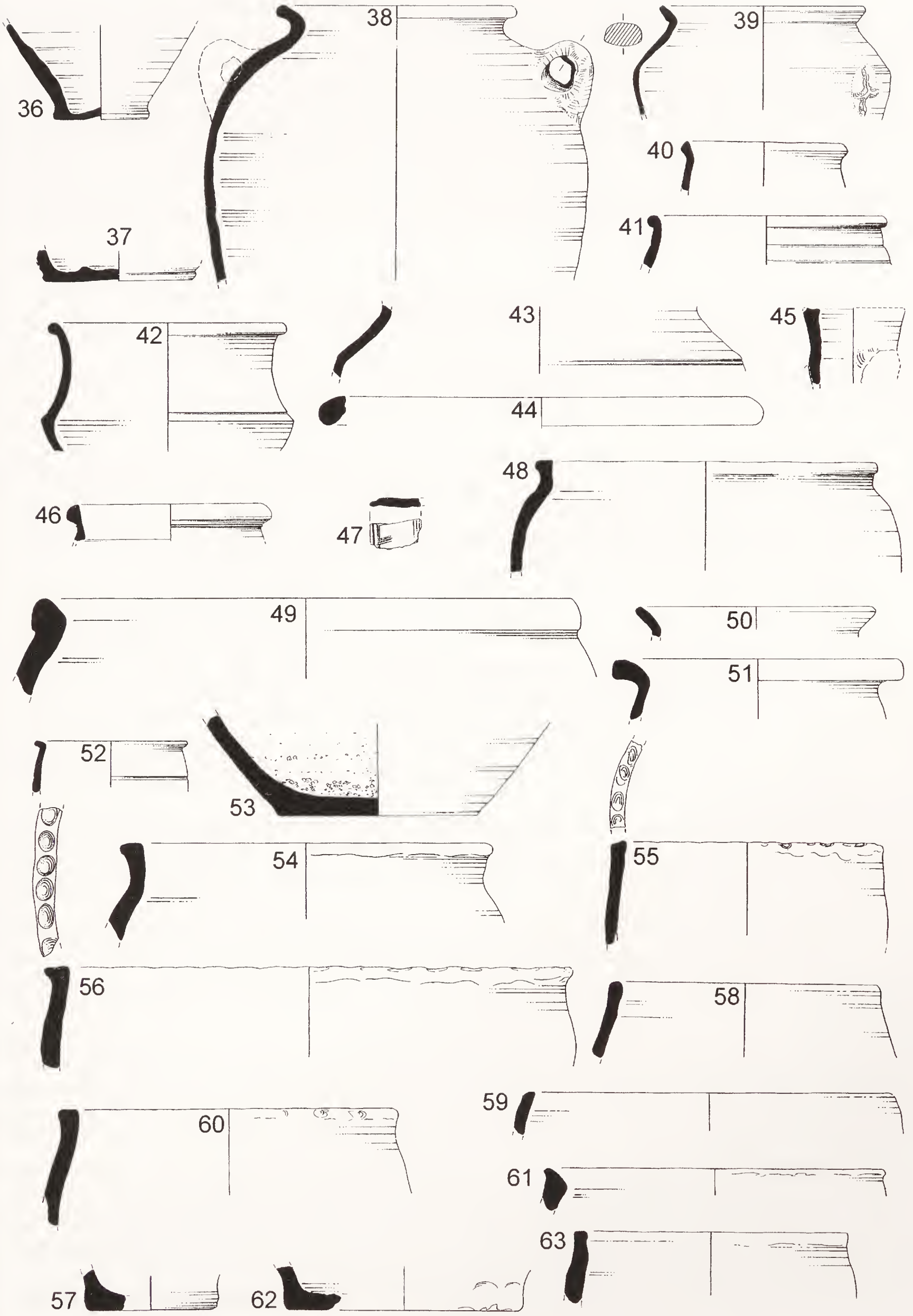

Fig. 14. The pottery.

cultivation, and chaff) is unhelpful here. Similarly, the absence of coins as a reflection upon the character of a rural economy may just be an accident of recovery (and the limited amount of the site sampled), but is perhaps worth noting nonetheless.

It is therefore likely that the central enclosure represents a small Iron Age farmstead, which continued into the Roman period. Pottery evidence seems to suggest that it did not endure beyond the end of the second century AD, and it may be worth remarking that it is at this time that the nearby villa at Welton Wold seems to have been constructed, also on the site of an Iron Age settlement (Wilson 1972; 1973). The possibility exists that the Welton Wold villa-estate came to dominate the landscape of which the Melton sites once formed a part.

SPECIALIST REPORTS

THE POTTERY (FIGS 13–14)

by Peter Didsbury

Introduction

A total of 882 sherds of pottery, weighing 8893 grams, and with a total rim eves of 9.16, was recovered during the excavations. It can be attributed chronologically in the following proportions (according to rim eves):

Iron Age/Romano-British hand-built wares	24.5 per cent
Romano-British wheel-thrown wares	72.9 per cent
Medieval wares	2.6 per cent

A full and detailed quantification of all the pottery, with individual context dating, is contained in the site archive.

DATE AND DISTRIBUTION OF THE POTTERY ASSEMBLAGES

The pottery comprises three main components, *i.e.*:

1. Hand built vessels of types current in the latest stage of the pre-Roman Iron Age in East Yorkshire, before AD 71, and continuing in use into the second century (see further below).
2. Gallo-Belgic imports emanating either from the Continent or from southern England (Colchester) in the Claudio-Neronian period, *i.e.* the period between *c.* AD 40–70, during which the Humber formed the north–western boundary of the Roman empire.
3. Fully Romanised grey and other wares characteristic of the Flavian to early Antonine periods in East Yorkshire, approximately AD 70–150.

On the basis of the above, the chronology of the trenches may be summarised as follows:

No pottery was recovered from Trenches D, I and J.

No unequivocally Roman period material was found in Trenches A, B and C, though small quantities of hand-built wares were recovered from all these westernmost trenches. The limited evidence available suggests that the building in Trench B may have been of high medieval date.

The Trench E assemblage (Fig. 13, nos 1–9) is composed predominantly of hand-built vessels, with a little Flavian-Antonine material appearing in the fill of 217. Most importantly, an unstratified Gallo-Belgic flagon sherd of Tiberio-Claudian date was also recovered (Fig. 13, no. 1), suggesting the site's status and socio-political/economic relationships with the Roman power in the peri-Conquest period.

Trench F (Figs 13–14, nos 10–37) appears to be largely Flavian-Antonine in date,

again with evidence from the topsoil of the reception of Gallo-Belgic imports (Fig. 13, no. 10).

Trench G (Fig. 14, nos 38–53) contains as its main feature a ditch (405), which can be interpreted as showing a chronological succession of assemblages, its earliest fill probably best regarded as late Neronian/early Flavian, and its tertiary fill as belonging to the first half of the second century.

Trench H contained nothing but hand-built wares in the 'native' tradition (Fig. 14, nos 54–61).

The main groups of wares may now be discussed individually.

Samian (none illustrated)

The small amount of samian recovered was kindly identified by Brenda Dickinson. A flake from a Neronian to early Flavian form 29 comes from context 303, and two late Neronian to early Flavian form 27s come from context 407, the primary fill of ditch 405 in Trench G. One of these, a 27g, is approximately 50 per cent extant. The latest samian is a sherd from an early/mid Antonine form 31 of Lezoux manufacture, from context 378, probably no later than AD 155/160.

Mortaria (Fig. 14, nos 44, 53)

The mortaria were kindly identified by Mrs K. H. Hartley. No. 53 can not be more closely described than as being of probably second-century regional manufacture. No. 44, from the tertiary fill of ditch 405, is probably residual in its context, being a Flavian import from North-eastern France.

Amphorae (none illustrated)

A single amphora body sherd, probably Dressel 20, comes from context 378. Small oxidised fragments from context 303 also contain putative amphora fabrics. None of this material has been submitted to specialist opinion.

Gallo-Belgic wares (Figs 13-14 nos 1, 10, 46)

These comprise two flagon forms (nos 1 and 10) and a butt beaker (no. 46). All the Camulodunum forms found (113, 161, and 163) are also now known from the Humber sites of Redcliff (North Ferriby) and Old Winteringham (Rigby 1976, Crowther and Didsbury 1988, Didsbury 1990) and can all be contained within the Tiberian to early Neronian period. Melton thus joins the limited number of material assemblages from East Yorkshire sites which reflect political and trade relations between Rome and the northern tribes of the Parisii and Brigantes during the generation which preceded the Roman crossing of the Humber in AD 71. The most important of these sites in East Yorkshire is the site at Redcliff, only some 3 kms to the south-east. The material from excavations which took place at Redcliff in the 1980s is currently being studied by Dr Steven Willis, with a view to elucidating the significance of the Roman imports found there in the generation preceding the Conquest. One of the major difficulties in interpretation has been that similar high status imports have not until now been evident in Redcliff's hinterland, and it has been difficult to ascertain whether these exotic products were somehow 'consumed' only at Redcliff itself, or whether they travelled to other sites in Parisia, perhaps as a means of articulating the social and political prestige of a tribal élite. The major importance of the material under discussion thus lies in the fact that it comes from an inland site which shows where at least some of the material received through the entrepôt at Redcliff was apparently travelling. In this regard, the difference between the pottery assemblages at the two sites are likely to be more interesting than

the similarities. A principal question, though it can hardly be resolved at present, must concern the reasons why the Gallo-Belgic *terra nigra* and *terra rubra* which are so common at Redcliff are entirely absent from Melton, when other imports are common to both sites.

Late Iron Age/early Roman hand-built vessels

The rims of the jars from these assemblages are most suggestive of forms current in the latest pre-Roman Iron Age in south-east Yorkshire, particularly those basic shapes which Challis and Harding (1975, 96ff) regard as most characteristic of the period. Perhaps most common are examples of their jars with upright, externally thickened rims, *e.g.* Figs 13–14, nos 3, 29, 48 and 54. The finger-tipping and slashed decoration which also occurs on a number of these vessels (Figs 13–14, nos 2, 55, 56) may be noted in view of Challis and Harding's recognition of a specifically late horizon of this kind of decoration at sites in East Yorkshire.

WHEEL-THROWN ROMANO-BRITISH WARES

There is a complete absence of any material which would suggest third- or fourth-century activity on the site (*e.g.* Dalesware, Holme upon Spalding Moor greywares), and all the diagnostic forms, as well as the fabric types present, point to a late first- and second-century date for this material. Some of the forms, such as carinated jars for example (Fig. 14, no. 42), have a Flavian to Antonine date range, and it is therefore conceivable that some of these assemblages close in the second half of the second century. Overwhelmingly, however, the emphasis appears to be on types current before about AD 150, and there is nothing that *need* go far into the Antonine period. Rusticated ware should be out of production by *c.* AD 150 at the very latest, and the earlier part of the century seems best placed to accommodate the Gallo-Belgic derived dish forms which are such a distinctive feature of these assemblages (Fig. 13, nos 9, 19, 26, 32). The greyware fabrics are reminiscent of those used in the Flavian-Antonine periods at Brough on Humber (Wacher 1969) and are mainly fairly coarse sand-tempered wares of the kinds produced at such North Lincolnshire kilns as Dragonby and Roxby. This is entirely typical of the period under discussion, for North Lincolnshire would appear to have been the main greyware supplier to south-east Yorkshire until the rise of the Holme industries in the earlier third century.

CATALOGUE OF ILLUSTRATED VESSELS

Vessels are wheel-thrown unless indicated otherwise. The bracketed reference at the end of each entry is the vessel's two-part identification number, composed of the context followed by a decimalised part number.

Illus. no.

TRENCH E:

1. Fragment of off-white flagon handle. Perhaps closest to the Tiberio-Claudian Forms 161 Ab and 161 B in the *Camulodunum* series (Hawkes and Hull 1947, Plates LXIII, LXV), though the fabric should in that case be fine, hard white pipe-clay. (200.1).
2. Hand-built. Rim fragment from jar(?) with slightly beaded rim, slash-decorated on exterior edge. Perforated before firing. Dark brown surfaces, black in fresh fracture. Fairly soft fabric, with abundant ill-sorted calcareous tempering up to 7 mm, including chalk and some fossil shell. Some traces of carbonised deposits/residues on interior. Perhaps *cf.* Challis and Harding 1975, Fig. 41, no. 11, from Saltshouse Road, Hull, a site conventionally regarded as dating to the first century AD (201.1).

3. Hand-built. Barrel-shaped vessel with flat-topped rim with slight external bead. Hard black fabric tempered with abundant calcareous material, predominantly fossiliferous limestone in the 2–3 mm range. Carbonised deposits on exterior. (212.1).
4. Base of greyware jar. Sand temper in the 0.25–1.00 mm range, with occasional chalk fragments. Light bluish-grey core, darker margins, light yellowish-brown interior, dark greyish-brown exterior. This type of base is not uncommon on rusticated jars. (212.2).
5. Hand-built. Base of jar/bowl. Hard fabric, black in fresh fracture, with reddish-yellow interior surface. Occasional voids up to *c.* 4 mm. (216.2).
6. Everted rim, possibly from a Flavian-Antonine carinated jar. Fine, almost untempered fabric with reddish-brown core and polished silky black surfaces. Sparse ferrous (?) inclusions to *c.* 1 mm. (216.1).
7. Large jar with outbent rim. Fine, sandy greyware with powdery surfaces. Light grey core, darker grey surfaces, reddish-yellow margins. (206/210.1).
8. Necked jar. Fabric similar to that of no. 7. (206/210.2).
9. Greyware dish with omphalos base and thickened rim. Interior decoration made with a six-toothed comb. Slightly sandy fabric, with occasional chalk flecks. Dark grey with thin pale brown margins. *Cf. Gillam* 337, dated AD 70–100. A similar comb-decorated form occurs in a second-century context at North Cave (Didsbury, forthcoming). (206/210.3).

TRENCH F:

10. Flagon. Soft white fabric. Camulodunum 163A (Hawkes and Hull 1947, Plate LXV). Tiberio-Claudian. (300.1).
11. Bowl with grooved exterior, loosely derived from samian form 30. Slightly sandy reddish-yellow fabric with light grey core. Exterior surfaces light brown, burnished/self-slipped. Later first- or earlier second-century? (300.2).
12. Outbent rim of jar/bowl. Hard, dense, sandy, blue-grey burnished fabric, possibly from the same source as no. 4. *Cf.* Gregory 1996, Fig. 20.15, no. 1056, and similar second-century forms. Possibly the 'blue-burnished greyware' which was the characteristic second- and third-century greyware at Dragonby. (300.3).
13. Wide-mouthed jar. Fine sandy fabric, with light brownish-grey core, light red margins and blue grey surfaces. Occasional red ferrous inclusions to *c.* 2 mm. (302.1).
14. Hand-built, possibly wheel-finished? Thin-walled, S-profile jar. Patchy dark grey to light reddish-brown surfaces, and grey core. Moderate amounts of calcareous temper below 2 mm. Temper well masked on both surfaces. Some carbonised deposits on exterior. (303.15).
15. Greyware jar with stabbed herringbone decoration on shoulder. Harsh-textured sandy light-grey ware with brownish-grey exterior. Traces of carbonised deposits on shoulder. *Cf.* Roxby forms B and A (Rigby and Stead 1976, Fig. 65). This kind of decoration appears to be Flavian to early Antonine at Brough, *cf.* Wacher 1969, nos 93, 108, 168 etc. (303.12).
16. Lid fragment? Rouletted upper surface. Find soft orange fabric, with light brown core in places. (303.1).
17. Greyware jar. Fairly soft, slightly sandy fabric. Reddish-orange core, pale brown margins, patchy dark grey and brown surfaces. (303.7).

18. Greyware jar. Hard harsh-textured light grey ware. Fabric similar to that of no. 4. (303.8).
19. Bowl with internally beaded rim. Greyish-brown sandy fabric with fine silky burnished black surfaces. Fabric same as that of nos 6 and 26. *Cf.* Darling 1984, Fig. 15, nos 43, 44 and note. A common regional Flavian to Antonine form. (303.2).
20. Greyware jar with zones of stabbed decoration. Fine sandy fabric with light grey surfaces and red core. Red bands on exterior where wheel burnished, perhaps a deliberate exploitation of differential oxidisation. Light yellow internal residue, which reacts with dilute hydrochloric acid. (303.14).
21. Body sherd from greyware jar with two external girth grooves. Fairly soft sandy fabric. Light brownish-grey core, red margins, dark grey surfaces. (303.4).
22. Greyware jar base. Fabric as that of no. 4 etc. (303.9).
23. Jar base. Fine hard light grey ware with dark grey exterior. (303.10).
24. Jar base. Fabric as that of no. 23. (303.11).
25. Hand-built. Jar base. Hard dark grey ware with patchy red exterior and brownish grey interior. Moderate to abundant angular stone temper in the 3–7 mm range. Temper masked on exterior but not interior. (303.13).
26. Inturned rim bowl. Greyish-brown sandy fabric, as that of nos 6 and 19, with fine silky black surfaces where burnished. Matt black exterior except for area of curve of rim, and matt black zone on which the burnished scroll decoration is reserved. (305.1).
27. Greyware jar base. Fabric similar to that of no. 26. (305.2).
28. Hand-built. Dark brownish-grey fabric with black exterior. Abundant limestone(?) and quartz *c.* 2 mm. Traces of carbonised deposits on exterior, and possible internal residues. (305.3).
29. Hand-built. Brownish fabric. Abundant ill-sorted fossiliferous limestone, 1–5 mm. External carbonised deposits in patches. (378.4).
30. Hand-built. Everted rim jar. Soft black fabric tempered with abundant shell(?) and other inclusions 1–3 mm. Light carbonised deposits on exterior. (378.3).
31. Everted rim greyware jar. Fine sandy dark grey fabric with some brown patches on exterior. Traces of carbonised deposits on exterior. (378.1).
32. Bowl with inturned rim. Similar form and fabric to no. 19, and possibly from same source. *Cf.* entries for nos 9 and 19. (378.2).
33. Everted rim jar. Fine hard light grey fabric with dark surfaces. Similar fabric to that of no. 8. Burnished on exterior, and on interior of rim. (380.1).
34. Hand-built. Bowl with heavy bead rim. Brownish fabric with patchy brown/black exterior, and red internal margin. Abundant limestone(?) up to *c.* 3 mm. Fairly well-smoothed exterior, interior heavily pitted with large voids. Black internal residue. (382.1).
35. Greyware jar. Hard black fine sandy fabric with thin red margins. Matt surfaces. (382.2).
36. Base of greyware jar. Fine light bluish-grey fabric with darker grey exterior. Occasional dark mineral inclusions. (391.1).
37. Base of jar. Harsh black sandy fabric with brown exterior and patchy brown interior. (391.2).

TRENCH G:

38. Handled jar. Fairly coarse sandy fabric, containing grog. Black with brown patches on exterior. Some external carbonised deposits. *Cf.* Rigby and Stead 1976, Fig. 82, no. 56, from an Antonine context at Winterton. (404.2).

39. Rusticated jar. Pale sandy light bluish-grey fabric, with common voids. Darker brownish grey surfaces. (404.3).
40. Hand-built jar. Black with brown margins. Micaceous. Flake of golden mica 3 mm long extrusive through exterior surface. External carbonised deposits. (404.7).
41. Greyware jar. (404.5).
42. Carinated jar. Fine sandy fabric with light red orange core and silky burnished dark grey surfaces. (404.1).
43. Jar with angular shoulder. Sandy greyware with brownish margins and surfaces. (404.4).
44. Mortarium rim fragment, as *Gillam* Type 238. Fairly soft, yellowish-white fabric. Northern France, *c.* AD 65–100. (Kindly identified by Mrs K. H. Hartley). (404.8).
45. Flagon fragment, rim missing. Fairly hard, yellowish-white fabric. Has an internal offset in the neck, as on some first-century examples from Eccles, Kent (Detsicas 1977). (404.6).
46. Butt beaker. Camulodunum Form 113 (Hawkes and Hull 1947, Plate LVII. Fine hard pinkish yellow fabric. Tiberio-Neronian. (406.1).
47. Fragment from flanged rim of dish/bowl. Fine fabric with self-slipped/burnished micaceous reddish-brown surfaces. *Cf.* Corder 1930, Fig. 17, no. 4 from Malton, or Rigby 1980, Fig. 35, no. 98, from Rudston. Similar forms appear as early as the Flavian period at Malton. (406.2).
48. Hand-built. Jar with flat-topped upright rim. Hard dark grey fabric with patchy red exterior. Abundant calcareous temper including fossil shell, up to *c.* 5 mm. (407.2).
49. Hand-built, with wheel-finished rim? Club-rimmed jar. Black with brownish patches on exterior. Ill-sorted shell to 15 mm, most below 5 mm. (407.1).
50. Everted rim jar. Light red core, sandy buff margins, black surfaces. (411.2).
51. Jar with heavy rim. Dark grey coarse sandy fabric with white margins and light grey surfaces. Most temper below 1 mm, some up to 5 mm. (411.4).
52. Small jar/beaker. Sandy light reddish-yellow fabric. (411.1).
53. Mortarium base. Coarse red fabric with remains of white slip on interior. Grey core in thickest parts of base. Polychrome grits including quartz and brown ironstone(?). North-east England, probably second-century. (Kindly identified by Mrs K. H. Hartley). (411.3).

TRENCH H:

54. Hand-built. Jar with flat-topped rim. Black with light brown exterior. Softish fabric with abundant shell, predominantly 2–3 mm, but up to 8 mm. Internal carbonised deposits/residue. (501.1).
55. Hand-built. Barrel jar with finger-tip (?) decoration on top of the rim. Black with patchy brown exterior. Abundant shell, much in 2–7 mm range. Temper well masked on exterior. (501.2).
56. Hand-built. Large barrel shape/bowl. Finger-tipped top of rim. Grey core, black exterior, brownish interior. Abundant limestone, 1–5 mm. Traces of carbonised deposits on exterior. (502.1).
57. Hand-built. Base. (Fabric description and ID no. not available). (502.1).
58. Hand-built. Jar with insloping upper body and upright simple rim. Soft dark grey fabric with brownish surfaces. Some fine shell temper extant. (502.3).
59. Hand-built. Barrel form? Hard black fabric with fossiliferous limestone mainly below 3 mm. Temper quite well masked on both surfaces. (502.4).

60. Hand-built. Jar with upright rim. Black with light brown exterior. Shell-tempered. (503.1).
61. Hand-built jar. Fabric as no. 60.
62. Hand-built. Jar base. Patchy brown to dark grey. Densely packed fossiliferous limestone, 3–8 mm.
63. Hand-built. Upright-rimmed barrel jar. Hard black fabric, tempered with fossiliferous limestone (possibly Cave oolite). (515.1).

The charred plant remains

by J. P. Huntley

Charred plant remains were recovered by floatation of bulk samples (20 litres) with both flots and residues retained upon 500 μ mesh. Both flots and residues were sorted for their plant remains. Identification was by comparison with modern reference material owned by the author. The botanical data are presented in Table 2 and the sample information in Appendix 1.

As is expected with a charred assemblage the plant remains are dominated by the cereal grains with their associated chaff and seeds of weeds of cultivation. Plants from other habitats are less likely to come into contact with fire other than accidentally whereas many cereal crops require drying prior to either processing or storage.

Legumes, including both peas (*Pisum sativum*) and Celtic bean (*Vicia faba*) are present. Their low occurrence does not necessarily indicate that they were a subsidiary aspect of the diet — simply they are an accidental survivor.

Of the identifiable cereal grains, bread wheat (*Triticum aestivum*) and a hexaploid wheat (which is likely to be either bread or spelt wheat) are the most common followed by barley and oats, although the latter may be either the cultivated or wild species since the two cannot reliably be separated by grains alone. Only one floret base of oat was present and that was from the cultivated *Avena sativa*. One possibly rye grain was present, as was one rye chaff fragment. This species may, of course, have been a crop in its own right but was probably simply a weed amongst other cereals at this time. No barley chaff was recorded. Moderate amounts of wheat chaff were present in some of the samples and represented both bread and spelt wheat. That from spelt was associated with the high values of hexaploid wheat grains and it seems reasonable to suggest that these grains were, indeed, spelt. Equally the higher values of bread wheat chaff (*Triticum aestivum* rachis nodes) were associated with bread wheat grains.

The weed seeds suggest a variety of cultivation regimes with sedges (*Carex* spp. and *Eleocharis palustris*) suggesting rather wetter ground, heath-grass (*Sieglingia decumbens*) and sheep's sorrel (*Rumex acetosella*) indicating dry acidic soils and other species of *Rumex*, *Chenopodium* and *Atriplex* suggesting higher levels of manuring. What is particularly interesting is that there are no strong indicators of calcareous soil, which would be expected given the nature of the underlying rocks. This suggests that cultivation, if present on the overlying soils, may well have been well manured; alternatively these soils may have only supported grassland suitable for pasture. The high levels of Brome grass (*Bromus* species) probably indicate a contaminant in the grain, since they are of a similar size to the cereal grains hence difficult to remove during processing other than individually by hand.

In terms of the individual samples, only two contained reasonable numbers of items, the remaining six containing fewer than 50 each. Little extra may be said of these latter samples. For the two richer samples (contexts 106 and 227) they have rather different assemblages.

TABLE 2: The botanical data (raw counts)

Context number	52	106	227	303	378	393	503	511	tot	#8	%occ
non cereal crops											
Legume >4 mm			2	1				1	4	3	37·5
Pisum sativum		4							4	1	12.5
Vicia faba		2							2	1	12.5
Cereal chaff											
Triticum glume base			15						15	1	12.5
Triticum spelta glume			12		4				16	2	25
Triticum spikelet fork			16						16	1	12.5
Triticum aestivum rachis node		41							41	1	12.5
Avena sativa floret base			1						1	1	12.5
Culm nodes		1	13		1				15	3	37·5
Avena awn			1						1	1	12.5
Triticum brittle rachis			3						3	1	12.5
Secale rachis internode	1								1	1	12.5
Cereal grain											
Triticum spelta				6					6	1	12.5
Triticum sp(p).							1		1	1	12.5
cf. *Secale cereale*			1						1	1	12.5
Cerealia undiff.	4	35	661	1	11	4			716	6	75
Avena		16	16			2			34	3	37·5
Hordeum hulled					4				4	1	12.5
Hordeum indet.	3	9	81	2		5	4		104	6	75
Triticum aestivum	5	137	27						169	3	37·5
Triticum (hexaploid)		5	142		2	1	2		152	5	62.5
weeds											
Bromus sp(p). grain		4	17	2	5		1		29	5	62.5
Atriplex sp(p).			5						5	1	12.5
Gramineae <2 mm	1	1	3		3		10		18	5	62.5
Mentha–type			1						1	1	12.5
Legume <4 mm		3	15			3	2		23	4	50
Carex (trigonous)	1		9		2	7	4		23	5	62.5
Carex (lenticular)			1		2	4			7	3	37·5
Eleocharis palustris			1						2	2	25
Montia font. chond.						3	5		8	2	25
Fallopia convolvulus					1	1			2	2	25
Polygonum lapathifolium			2						2	1	12.5
Anthemis cotula	1	2	1						4	3	37·5
Chenopodium album			1				2		3	2	25
Rumex acetosella		1			3			1	5	3	37·5
Raphanus raphanistrum pod frag.		5		1					6	2	25
Rumex obtusifolius–type			10		1		1	1	13	4	50
Sieglingia decumbens		1				14	14		29	3	37·5

Single occurrence of seeds:
Context 106: *Tripleurospermum maritimum*, *Scirpus lacustris*, Gramineae >4 mm and *Chrysanthemum segetum*. Context 227: *Plantago lanceolata*, *Agrostemma githago* and Gramineae 2–4 mm. Context 378: *Raphanus raphanistrum* and *Hyoscyamus niger*.
Context 503: *Galeopsis tetrahit*.

Context 106 contains the bulk of the bread wheat and the sole occurrence of moderate numbers of bread wheat chaff fragments. Bread wheat is free threshing and therefore grain and chaff are largely separated at threshing. The relative abundance of chaff in this context (1 chaff : 3 grain) suggests that threshing debris had been deposited in this fill. The lack of large straw fragments, also the by-product of threshing, could suggest that this wheat was plucked/cut below the ear with the straw either being left in the field or utilised elsewhere. The associated weed seeds suggest cultivation on heavier clay soils with manuring, perfectly in keeping with the cultivation of bread wheat. Although the site as a whole was broadly described as a Romano-British ladder settlement, the suite from this context suggests a later date — possibly even Medieval. Whilst bread wheat has been recorded from the late Iron Age to Romano-British period (e.g. Staple Howe, North Yorkshire, Brewster 1963; Barton Court Farm, Oxfordshire, Jones 1986; Rock Castle, North Yorkshire, van der Veen in Fitts *et al.* 1994; Scotch Corner, Durham, Huntley in Abramson 1995) weed taxa such as *Anthemis cotula* and *Chrysanthemum segetum* rarely appear before the Medieval period.

Context 227 contains considerably more material but which is less well preserved. About 60 per cent of the cereal grains are not identifiable even to genus. Bread wheat is present but the assemblage is dominated by hexaploid wheat grains. From the evidence of the chaff, as discussed above, it is suggested that this wheat is largely spelt. Glume bases and spikelet fork fragments of spelt are present, as are moderate numbers of culm nodes — the large fragments of straw. Culm nodes represent debris from the threshing process — the initial process after harvesting, and their presence suggests that the crops were probably being grown by the inhabitants of this settlement. Their presence also indicates that this crop was probably cut or pulled at ground level. Spelt is a glume wheat with spikelets being produced upon threshing, rather than the free grain of bread wheat. These spikelets are then dried/parched and pounded to release the grains from the glumes, with the glume bases and spikelet forks representing a by-product from this process. The associated weed assemblage is also different from that of 106. The wet ground taxa are common; only four species in total are in common with 106, 11 being unique to 227. Given the nature of the deposit — a tertiary fill — it would seem that a variety of material was dumped in it. This represents initial threshing by-products as well as later stages in crop processing and a considerable amount of grain too. This was, presumably, material burnt beyond use during the parching process, although could represent cleanings and the annual bonfire from clearing out storage buildings from one year to the next. The generally poor state of preservation could indicate that the material lay around for some time prior to deposition or could relate to an active burial environment. The former is more likely, given the preservation of generally delicate glume fragments. The suite from this context is completely in keeping with a Romano-British assemblage.

Whether a site was a consumer or a producer of grain is almost impossible to determine, although always requested by the archaeologist. Whilst pure grain could be thought to represent a consumer site, Jones (1985) argued that a consumer would be characterised by the by-products (having presumably eaten all of the grain!) and it was the producer that had only grain. The assumption here, though, must be that the material represented on the producer site is the stored final product — there is no suggestion as to what has happened to the processing by-products. What seems more reasonable is the suggestion by Hillman (1981, 1984) that a producer site will, indeed, contain representation of all of the processing stages, whereas a consumer will only have material from the later stages depending upon whether the grains are free-threshing or not. The presence of the large

culm node and straw fragments at Melton may well suggest a producer site although such material may, of course, have been used as bedding/thatching on a consumer site! Given that the evidence can be further biased depending upon the species and which fragments may be differentially preserved or not, perhaps should lead one to ignore this aspect and concentrate upon the cultivation regimes represented.

Published sites with botanical data are not available from this area, as far as the author is aware, but there are some archive reports primarily from excavations by staff in the Department of Archaeology at the University of Durham. Palmer (n.d.) identified charred material from a Roman pottery kiln site at Bursea House and found a mixture of wheat and barley. Although most of her wheat was hexaploid category only, she did recover one bread wheat grain. The only wheat chaff present was glume material, the majority of which were from spelt. The rest was, presumably unidentifiable. A third of her barley remains consisted of internode fragments (chaff) and therefore different from Melton. Weed assemblages again represented damp conditions and acidic soils generally.

Palmer and Whitehouse (1994) analysed samples from a third-century AD waterlogged feature at Shiptonthorpe. Although samples were very small, Palmer recovered an emmer glume base, spelt glume bases and a bread wheat rachis internode. Barley grains and rachis were present too. Weeds were from a very similar suite to that at Melton.

The largest assemblage available from this general area is that from Redcliff (van der Veen 1990). The majority of the material was from the mid first century AD, a late Iron Age settlement site with a very small amount of material dated to the Saxon period. Only six per cent of the assemblage was represented by cereal grains (barley, spelt and bread/club wheat) and eight per cent by cereal charr (spelt and barley). Seventy nine per cent of the remains were from seeds of arable weeds and the Redcliff assemblage is therefore clearly different from that at Melton. These seeds, however, represent similar habitats and cultivation regimes — wet marshy ground, rather acidic soils and a variety of nutrient enrichment regimes.

In summary, only two of the sample produced enough material to offer an interpretation. The plant remains for all eight samples were dominated by cereal grains (representing 80 per cent of the assemblage). Although largely unidentifiable, there were significant numbers of bread wheat and spelt wheat and some barley. Chaff fragments represented seven per cent of the assemblage and weed seeds 13 per cent. In addition, ten seeds of peas and/or beans were present but no evidence for other economic taxa. The spelt and bread wheat were almost mutually exclusive and it is argued, from the associated weed assemblages, that the bread wheat context may, in fact, represent later material than the general site dating indicates. The spelt context fits neatly with a Romano-British date. Large chaff fragments suggest some local production but the other chaff fragments could indicate either a consumer or a producer site. Weed assemblages suggest cultivation on rather acidic soils and with impeded drainage. There is some evidence for nutrient enrichment, presumably through manuring. The cultivation seems, therefore, to have been on the soils nearer to the river with little evidence for cultivation on the more calcareous soils of the immediate vicinity. These may have supported grassland. The site adds further information about a period little known from its plant remains in this part of East Yorkshire. Given the amount of information which has been extracted from, in effect, only two samples, it is clear that this site has high potential for further work, should road development be undertaken at any stage in the future. Larger samples would need to be taken but the results should be rewarding in investigating economic practices through a period of change.

THE ANIMAL BONES

by L. J. Gidney

Introduction

The archaeological evaluation of the Iron Age and Romano-British 'ladder' settlement at Melton produced animal bones among the hand-recovered finds from Trenches A, B, C, E, F, G and H. Trenches E–H produced the greatest quantities of bone.

The occupation has been divided into four phases:

Phase 1 pre-Roman Iron Age
Phase 2 pre/early Roman Iron Age
Phase 3 Roman
Phase 4 Medieval

It was not possible to phase some contexts, while others were of modern origin.

Preservation

The bones were generally in good condition. Some are brittle and have been chipped or broken since being excavated. This has reduced the number of otherwise measurable bones. Three contexts in Trench E and one in Trench H contained bones in poor condition, which appeared to have been redeposited. The majority of the bones appear

Table 3a: Summary of fragment counts for the species present

Hand Recovered Finds Trenches	A	B	C	E	F	G	H
Cattle	1	9		61	10	37	18
Sheep/Goat	2	17	1	6	98	22	31
Pig				4	38	7	1
Horse				12	2	17	5
cf. Dog				1			
Dog					1		
cf. Red Deer				1			
Large Ungulate		1	3	10	1	8	
Small Ungulate		5			24	1	4
Human		1		6			1
cf. Human				1			
Mouse sp.				5			
Vole sp.				3			
Shrew sp.				2			
Buzzard							1
Rook/Crow				2			
Thrush sp.				1			
Bird sp.					1		
Frog/Toad						1	
Unidentified	8	26		128	174	123	128

TABLE 3b: Summary of fragment counts for the species present

Hand Recovered Finds	Phases				Unknown	Modern
	1	2	3	4		
Cattle	30	22	71	10	1	2
Sheep/Goat	3	106	29	18	17	4
Pig	3	38	10			
Horse	7	6	22			
Dog & cf. Dog	1	1	1			
cf. Red Deer	1					
Large Ungulate		3	19	1		
Small Ungulate	5	26	1	5		
Human & cf. Human	3		5	1		
Mouse sp.	2					
Vole sp.	3					
Shrew sp.	2					
Buzzard						1
Rook/Crow	2					
Thrush sp.	1					
Bird sp.			1			
Frog/Toad			1			
Unidentified	68	250	192	32	21	13

TABLE 4a: Relative proportions of the domestic species from fragment counts

Trenches	A	B	C	E	F	G	H
Cattle &	1	10	3	71	11	45	18
Large Ungulate	33%	31%	75%	88%	6%	60%	33%
Sheep/Goat &	2	22	1	6	122	23	35
Small Ungulate	66%	69%	25%	7%	71%	31%	65%
Pig				4	38	7	1
				5%	22%	9%	2%
Totals	3	32	4	81	171	75	54

to have been buried when in fresh condition. Gnaw marks were seen on many fragments indicating that dogs had access to much of the material prior to burial. Butchery marks were infrequently observed. None of the bones exhibited the heavy-handed butchery techniques particularly associated with Roman military establishments.

TABLE 4b: Relative proportions of the domestic species from fragment counts

Phases	1	2	3	4
Cattle & Large Ungulate	30 73%	25 13%	90 70%	11 29%
Sheep/Goat & Small Ungulate	8 20%	132 68%	30 23%	23 61%
Pig	3 7%	38 19%	10 7%	
Totals	41	195	130	38

SPECIES

Approximate counts of the identifiable fragments are presented in Table 3a by trench and Table 3b by phase. It can be seen that the bulk of the identifiable fragments were from cattle and sheep/goat. Ribs and vertebrae were recorded as either large ungulate for the cattle size examples or small ungulate for those sheep sized. The term sheep/goat is used. However, no examples of goat bones were seen, all diagnostic fragments were of sheep. It should be emphasised that the total collection of identifiable fragments is small and therefore some of the variation present may be a product of small sample size. The relative proportions of Cattle: Sheep: Pig from fragments counts in Tables 4a and 4b show interesting variation between the trenches and the phases. Cattle fragments predominate only in Trenches E and G. A high proportion of cattle remains is usually associated with Roman occupational debris, and one Roman phase was identified in Trench E. A concentration of cattle bones was observed from Trench E which may indicate the dispersal of remains originally deposited in articulation. Trenches B, F and H produced greater quantities of sheep/goat fragments, a trend normally found in pre-Roman Iron Age deposits. Roman phases were identified in Trenches B and F. Pig bones were scarce and were only found in number in Trench F, where they outnumbered remains of cattle. In fact, the bulk of the pig bones were found in context 393, which produced no cattle bones.

The phase, rather than area, breakdown of the species in Table 4b shows an interesting pattern with cattle bones predominating over those of sheep and pig in Phase 1, a shift to high proportions of sheep and pig fragments relative to those of cattle in Phase 2, followed by a return to the Phase 1 pattern, with cattle remains predominant, in Phase 3.

Although the assemblage from Melton is small, it is of interest that similar trends have been observed at other contemporary sites. At Thorpe Thewles, Rackham (1987) observed a decline in the proportion of cattle bones and a concomitant increase in sheep bones in phase III, comparable to Phase 2, relative to phase II, comparable with Phase 1. Similarly, at Redcliff sheep bones were most numerous in the late pre-Roman Iron Age phases but cattle bones were most abundant in the later phases (Gidney unpublished).

The medieval group from Phase 4 is particularly small but follows the trend anticipated for the period with sheep fragments outnumbering those of cattle.

Teeth, fused and unfused epiphysial ends were found for the three main domesticates.

However, there were too few examples for any analyses of age structure, slaughter pattern or stature.

Horse bones were found in Trenches E and H. These included complete metapodials and gnawed bones which may indicate partial recovery of bodies originally dumped in ditches and dispersed by scavengers. Table 3b indicates that horse bones were present in Phases 1 and 2, reached peak abundance in Phase 3 and were absent from Phase 4. The contrast in numbers of horse bones present in Phases 2 and 3 is particularly striking since the overall numbers of identified bones are similar.

The frequency of canid gnaw marks on bones is a better indication of the presence of dogs on the site than the bones found, which were single elements confined to Trenches E and F, Phases 1–3.

Red deer was represented by a single fragment of worked antler from Trench E, Phase 1. While the fragment itself is not diagnostic, it is too large for roe deer antler and fallow deer are a medieval introduction.

Dispersed human remains were found in Trench E with further examples in Trenches B and H. One bone had been gnawed. This may suggest scavenging of either burials or gibbeted bodies by dogs and perhaps also pigs, foxes or mustelids.

A small cache of small mammal bones was found in Trench E, context 222, Phase 1. The jaws indicate the presence of mouse, vole and shrew species. These may have been accumulated by a wild predator, for example in the pellets regurgitated by birds of prey.

Bird bones were very infrequent with a total absence of domestic poultry. The corvid and thrush family bones were found in association with the small animal bones in context 222. The buzzard bone from Trench H is from a recent context and may represent an episode in the persecution of this species since the seventeenth century (Reid-Henry and Harrison 1988, 79).

A part skeleton of a frog or toad was found in Trench G, context 407, Phase 3. Amphibians are active in spring and summer and are attracted to damp ditches.

Samples

The samples have not enhanced the representation of larger species. Only one sample from Trench F produced several identifiable bones of sheep/goat and pig, besides a

TABLE 5: Presence of faunal remains in samples

Trenches	A	B	C	E	F	G	H
No. of samples with bones	1	3	1	4	12	3	6
Burnt bone		1		2	11	1	5
Indet. bone	1	3	1	4	12	3	6
Sheep/Goat					2	1	
Pig					1		1
Small mammal	1		1	3	3	2	4
Vole sp.	1			2	1	1	1
Frog/Toad	1	2	1	1	2	2	1
Bird sp.				2	3		1

quantity of burnt bone fragments which had no counterpart in the hand recovered collection. The samples have greatly increased the recovery of small mammal and frog/toad bones, which can be seen to be more evenly distributed through the trenches in Table 5. The majority of the small mammal teeth were from vole species with one mouse jaw and no further finds of shrews. The bird bones were all from small wild species. There were no indubitable examples of fish bone from the samples. Small mammal, bird and amphibian species appear to have been attracted by the human environment, for example ditches with decaying refuse, while open pits may have inadvertently acted as deadfall traps.

THE MOLLUSCS

by John Carrott, Harry Kenward and Annie Milles

Summary

Six assemblages of molluscs, mostly from ditch features, from an Iron Age and Romano-British settlement at Melton, East Yorkshire, have been investigated. The moderate to large assemblages of well-preserved remains were dominated by dry and damp grassland taxa, with little clear evidence for tree or scrub cover.

Methods

Practical methods

The samples were examined as pre-processed flots (together with a small amount of material recovered from the residues).

Counts are for minimum numbers of individuals (MNI). Two *Vallonia* species and two *Carychium* species were present in very large numbers in four of the flots in these cases twenty identifications were made and the MNI counts for each species proportioned accordingly.

The samples identified by the evaluation as having the greatest potential were recorded in some detail, although semi-quantitative estimates of minimum numbers of individuals were used in a few cases (see below). All complete fossils and distinctive fragments were identified to species (with the exception of *Cepaea* sp.), although all of the flots contained numerous unidentified fragments.

The manuscript lists were entered to a Paradox database using a system written by JC. These data were interrogated using Paradox, the Microsoft Excel spreadsheet package and a Pascal program written by HK, producing 'main statistics' and species lists in rank order for each assemblage and for the whole site.

Interpretative methods

As a first step towards integrating evidence from molluscs with that from other invertebrate remains, the interpretative methods employed in this report parallel those used for insect remains from a variety of sites by Kenward and co-workers (introduced by Kenward 1978, with refinements discussed, for example, by Kenward 1982; 1988 and Hall and Kenward 1990). The interpretation rests on certain main statistics of whole assemblages of molluscs. The ecological codes applied to species are derived from those used by Dr T. P. O'Connor in his work in the EAU (e.g. Kenward and Hall 1995, 791).

The principal sources for the biology of the recorded species were Evans (1972) and Kerney and Cameron (1979).

The taxa recorded are listed sample by sample in Table 6, which also includes some summary data.

TABLE 6: Counts, semi-quantitative note and some summary statistics for mollusc remains from Melton. Key to Prefix: S—number of species; N—minimum number of individuals. Key to Ecodes and Suffix: TV—dry grassland; RS—rock rubble/scree; WL—woodland/leaf litter; SN—synanthropic; WS—woodland/scrub; DV—damp grassland; DW—aquatic marginal vegetation. Key to semi-quantitative note: p—present.

Species	Ecodes	Phase 1		Phase 2								Phase 3	
		503		206AA		227AA		227AB		824		407	
		N	%	N	%	N	%	N	%	N	%	N	%
Carychium minimum (Müller)	dv	9	3.0	2	0.2	15	1.7	31	1.5	0	0.0	340	15.8
Carychium tridentatum (Risso)	dv	15	5.0	71	8.8	139	16.2	281	13.3	1	0.3	625	29.1
Cochlicopa lubrica (Müller)	dv	9	3.0	8	1.0	34	4.0	114	5.4	0	0.0	143	6.6
Columella edentula (Drapernaud)	ws–dv	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0
Truncatellina cylindrica (Férussac)	tv–rs	0	0.0	3	0.4	5	0.6	5	0.2	0	0.0	0	0.0
Vertigo pygmaea (Draparnaud)	tv	0	0.0	6	0.7	12	1.4	40	1.9	1	0.3	2	0.1
Pupilla muscorum (Linnaeus)	tv	2	0.7	20	2.5	5	0.6	14	0.7	17	5.4	7	0.3
Lauria cylindracea (da Costa)	dv	0	0.0	5	0.6	4	0.5	10	0.5	0	0.0	6	0.3
Vallonia costata (Müller)	tv	148	49.7	403	50.1	438	51.0	1113	52.5	0	0.0	765	35.6
Vallonia excentrica Sterki	tv	16	5.4	71	8.8	110	12.8	278	13.1	18	5.7	25	1.2
Acanthinula aculeata (Müller)	wl	2	0.7	12	1.5	17	2.0	37	1.7	0	0.0	0	0.0
Ena obscura (Müller)	wl	2	0.7	5	0.6	5	0.6	7	0.3	0	0.0	23	1.1
Punctum pygmaeum (Draparnaud)	wl–dv	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Discus rotundatus (Müller)	ws–dv–sn	1	0.3	5	0.6	16	1.9	25	1.2	0	0.0	11	0.5
Vitrea crystallina (Müller)	dw–dv	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.1
Vitrea contracta (Westerlund)	dv–rs	1	0.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Aegopinella nitidula (Draparnaud)	sn–ws–dv–rs	2	0.7	5	0.6	8	0.9	17	0.8	0	0.0	47	2.2
Oxychilus cellarius (Müller)	sn–ws–rs	10	3.4	3	0.4	12	1.4	10	0.5	0	0.0	32	1.5
Cecilioides acicula (Müller)	–	0	0.0	154	19.2	1	0.1	0	0.0	267	84.5	4	0.2
Clausilia bidentata (Ström)	wl–ws–rs	14	4.7	14	1.7	23	2.7	42	2.0	0	0.0	6	0.3
Cernuella neglecta (Draparnaud)	tv	2	0.7	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Helicella itala (Linnaeus)	tv	0	0.0	5	0.6	0	0.0	0	0.0	0	0.0	0	0.0
Trichia hispida (Linnaeus)	dv–tv–ws	10	3.4	9	1.1	13	1.5	93	4.4	0	0.0	44	2.0
Cepaea sp.	dv–ws	50	16.8	1	0.1	2	0.2	2	0.1	0	0.0	69	3.2
Mytilus sp.	m–ed	–	–	–	–	–	–	–	–	–	–	p	–

Results and general discussion

Terrestrial taxa

All of the samples gave large numbers of remains. Preservation was generally good although most of the fossils showed some 'weathering' (surface erosion) and, as noted above, there were many unidentified fragments.

Two of the flots (from Contexts 206 and 824) showed evidence of modern bioturbation — large quantities of rootlets and large numbers of *Cecilioides acicula*, a burrowing land snail which is almost certainly intrusive to these deposits since there are good reasons for believing it is a recent introduction (Evans 1972, 168).

The assemblages were generally uniform and yielded a substantial range of taxa.

The mollusc assemblages had a distinct general character; a mixture of dry and damp grassland forms, with some taxa also able to exploit shadier habitats in woodland or scrub. Dominant species were *Vallonia costata, V. excentrica, Carychium tridentatum, C. minimum* and *Cochlicopa lubrica*, but several other taxa occurred in quite substantial numbers.

Marine taxa

A very small number of marine mollusc shells were also recovered. These were mostly very rotted and of no interpretative value beyond demonstrating their probable utilisation for foot.

Discussion by period, trench and context

Phase 1

Trench H

Context 503 [tertiary fill of enclosure ditch 504]

This group was dominated by *Vallonia costata* and *Cepaea* sp. (perhaps both *C. nemoralis* and *C. hortensis*, although the condition of the material left the identifications somewhat uncertain). Again, the assemblage suggests that this was a 'dry' ditch feature.

Phase 2

Trench E

[Contexts 206 and 227 — tertiary fills of substantial ditch 207]

The assemblages have the general character outlined above, although there is a substantially higher proportion of damp grassland taxa in Context 227, the lower of the contexts, when compared with the upper (27 per cent and 13 per cent respectively). The absence of any freshwater or aquatic marginal vegetation indicators suggests strongly that this was a 'dry' ditch, the damp grassland taxa perhaps being favoured by the slightly moister conditions within the cut.

All of the samples from these contexts (206AA, 227AA and 227AB) contained *Truncatellina cylindrica* a species which is 'widespread but always very local' (Kerney and Cameron 1979) and only recorded from a few locations in the British Isles.

Trench F

Context 824 [fill of posthole 825 associated with putative early Roman rectangular structure]

The assemblage is dominated by the burrowing snail *Cecilioides acicula*. This species aside the general character of the small residual assemblage (49 individuals) is consistent

with those from the other contexts. However, the presence of *C. acicula*, together with the large quantity of rootlets in the flot, must cast doubt on ecological interpretation.

Phase 3

Trench G

Context 407 [primary fill of large 'V'-section ditch 405]

The assemblage shows a markedly larger proportion of damp grassland forms and correspondingly lower proportion of dry grassland taxa by comparison with others from the site, although the numbers of species of each group are similar to the other contexts (with the exception of 824). The dominant species were *Vallonia costata, Carychium tridentatum, C. minimum* and *Cochlicopa lubrica*, all of which were very abundant, and there were also numerous *Cepaea* sp. However, as in the case of the assemblages from Trench E, the absence of obligate of freshwater and aquatic marginal vegetation snails suggest that this was a 'dry' ditch.

Discussion

For this report the authors have 'borrowed' the ecological coding system previously employed in the EAU. However, analysis of the present assemblages has served strongly to emphasise the need for a radically new approach to ecological coding for this rather difficult group. This was not feasible within project constraints.

The material was supplied pre-processed from bulk samples, and the assemblages were as a result of uncontrolled size. It is not easy randomly to subdivide material of this kind, so all the snails from each of the selected samples have been recorded. Much smaller groups from 'GBA' (*sensu* Dobney *et al.* 1992) samples would have given essentially the same information for much less expenditure of effort, and more of the assemblages could have been listed in detail.

Overall, the snails indicate grassy vegetation, at least in places offering some degree of moisture and shade for the 'damp ground' taxa, which were probably favoured by conditions in the ditches and may not, therefore, reflect ecological conditions beyond them. Clearly, there were habitats for species of open, quite dry, ground, probably the general surface in the area, but conceivably only the ditch slopes themselves. It is important to establish whether the ditches infilled by colluviation, so that snails from a wide area upslope might be included, or whether infill was by inwash of finer material, in which case much of the fauna might be autochthonous (originating at the point of deposition). In the former case the snail assemblages have value in defining the broad ecology of the site, but in the latter case they will obviously only give information about the ditches and their immediate surroundings.

The assemblages indicate only minor variations in the ecological conditions on the site over time. The assemblage from Context 824 is somewhat different to those from the other contexts but is relatively much smaller, and therefore more easily biased, and shows evidence of bioturbation and a probable intrusive species (rootlets and C. acicula, respectively).

CONCLUSIONS

Trial excavation at Melton has identified an Iron Age, early Roman, and medieval period landscape. There are obvious implications of continuity between the pre-Roman and Roman periods, spanning an important transitional period. The excavated features compared very favourably with the geophysical survey, but proved able to elucidate areas where the aerial photographs and the geophysical plot were unclear (as happened in the

area of Trench A) or where definition was insufficient (such as the rectangular building in Trench B and the circular structures in Trench F). The dating evidence, exclusively ceramic as it so happens (although there was potential for radiocarbon dating), enables a clear, if tentative, phasing to be applied to some parts of the archaeological landscapes identified at Melton.

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ROMAN COINS IN WHITBY MUSEUM

By David Shotter

The Museum's collection contains 130 legible Roman Coins— in addition to the group excavated at Goldsborough; most of these, however, are unfortunately unprovenanced. The coins range from Claudius I to Arcadius (Appendix 1).

This group of Roman coins in the Museum contains very few that are provenanced, and does not include the small collection which derives from the site of the coastal watch-tower at Goldsborough (Hornsby and Laverick, 1932), which will be discussed below. The record of *provenanced* coins from the Whitby area is very small (Clark, 1935, 138; *YAJ* XXXIII (1936–38), 228; see Appendix). Such descriptions of these as are given make it a reasonable assumption that most are probably included in the Museum collection. They include *aes*-issues of Vespasian and Domitian, a *denarius* of Hadrian, a coin of Licinius I and a Constantinian GLORIA EXERCITVS. The only one of these that can definitely not be traced in the Museum's collection was described as an Alexandrian issue of Antoninus Pius. Further 'Whitby finds' are given by Elgee (1923, 19), and comprise an *aes*-issue of Severus Alexander (of which there are two in the Museum), and a *denarius* of Hadrian.

Eleven Roman coins have been found at the Monastic site (Peers and Radford, 1943, 85); one of these was illegible, whilst two Constantinian issues were found with a hoard of stycas. The remaining listed coins were: Tetricus I 1; Constantine I 1; Valentinian I 2; Valens 2; Gratian 1. It seems that these coins are lodged with the other finds in the British Museum.

Twenty-one coins were recovered from excavations at Goldsborough; a further Constantinian issue was found in 1962 (*YAJ* XLI (1963–66), 6). The complete list from Goldsborough is thus as follows:

Hadrian	1	Æ (*RIC* 970)
Divus Claudius	1	Æ (*RIC* 259)
Constantinian		
GLORIA EXERCITVS		
(1 standard)	2	Æ
PAX PVBLICA	1	Æ (*LRBC* I. 104)
Valentinianic		
GLORIA ROMANORVM	3	Æ (inc. *LRBC* II. 479)
SECVRITAS REIPVBLICAE	6	Æ (*LRBC* II. 104, 277, 309, 504, 528, 995)
GLORIA NOVI SAECVLI	1	Æ (*LRBC* II. 505)
Valentinian II	1	Æ (*LRBC* II. 1083)
Theodosius I	3	Æ (inc. *LRBC* II. 804 (2))
Arcadius	1	Æ (as *LRBC* II. 164)
Eugenius	1	ÆR (*RIC* IX (Trier), 106d)
Honorius	1	ÆR (Hunter (*Honorius*), 8)

DISCUSSION OF THE COINS FROM WHITBY

If we assume that the Museum's collection is made up of local finds, and add to it the other coins known to have originated in Whitby, we achieve the following table of 142 coins (Table 1).

TABLE 1

		%			%			%
I	–	–	VIII	1	0.70	XV	14	9.86
II	1	0.70	IX	–	–	XVI	3	2.11
III	–	–	X	2	1.41	XVII	45	31.69
IV	2	1.41	XI	2	1.41	XVIII	15	10.57
V	1	0.70	XII	2	1.41	XIX	22	15.49
VI	2	1.41	XIII	19	13.38	XX	–	–
VII	4	2.82	XIV	2	1.41	XXI	5	3.52

Thus 7.74 per cent of the sample derives from the first and second centuries, and 11.97 per cent pre-dates the *Imperium Galliarum*, whilst the period from the mid-third century onwards accounts for 88.03 per cent of the sample.

This provides no basis for suggesting the existence of a Flavian military site in the vicinity of Whitby, though, as in the north-west (Shotter, 1994), the coin of Claudius I might indicate Whitby's natural harbour as a possible disembarkation point for troops sent in the pre-Flavian period to police the treaty between Rome and the Brigantes; in particular, this may have been connected with problems arising out of the Brigantes' relationship with their immediate neighbours. It might have been expected, however, that there would have been more evidence of activity around the estuary of the Esk in the first and second centuries as a part of the developing infrastructure servicing military sites inland.

From the middle of the second century, the coin-evidence begins to grow in strength; the impetus behind this was surely economic and commercial, as the market represented by the soldiers and civilians at York and other sites started to develop. We may assume that the harbour facilities were seen to offer advantages to traders and the reported find of an Alexandrian coin of Antoninus seems to point in this direction. Local farmers will have been stimulated, and agriculture will have developed as veterans from York and other military sites were settled locally. A hoard, apparently terminating with coins of Marcus Aurelius, which was found at Ugthorpe in 1792, hints at growing prosperity in the region. We may assume that an important feature of this prosperity was a developing trade in jet objects.

Whitby's coin-sample begins to show strength in the third century; although period X (AD 192–222) is on the slight side, the appearance of coins in XI (AD 222–35) and XII (AD 235–59) which are normally poorly represented, may be taken to point to a definite acceleration of economic activity. Period XIII, to which radiates and copies of them have been assigned, has 13.38 per cent of the total sample, though it should be noted that this is considerably smaller than is usually found on military sites in the north, where 20 per cent – 35 per cent of sample-size is not uncommon. It should also be noted that, for a variety of reasons, some of these losses could have occurred up to a century after the coins' nominal dates of issue. It is, for example, not uncommon to find radiate copies associated with hoards of a relatively late date in the fourth century (Shotter, 1978), and such coins frequently make an appearance in the assemblages of the coastal watchtowers.

The real strength of Whitby's coin-sample emerges in the fourth century, to which approximately 73 per cent of the coins are attributable, although the standard of recording does not always allow precise allocation to be made between period XV, XVI and XVII. It is likely that in general terms, particularly in the early part of the century, this strength is to be explained by the growing significance of York as a result of the reforms of Diocletian and Constantine, and the closer bonds with the provinces of western Europe which these will have entailed.

It is of particular interest that so large a part of the sample is occupied by coins whose dates of issue fall later than *c.* AD 350 (approximately 31 per cent); of these, five are later than AD 388, and coins of the House of Valentinian are particularly numerous (period XIX). It is hard to imagine that the reason for this lies in other than military activities connected with the concentration of attention on the north-east coast after AD 367. The question naturally arises as to whether Whitby should be regarded as another watchtower site — presumably on the East Cliff and buried beneath the monastic site. Five Valentinianic coins have been recorded from that area, and all recorded coins are later than the mid-third century AD. To date, however, no coins later than Valentinianic have been reported as specifically from the East Cliff, although there are five unprovenanced issues of Theodosius and Arcadius in the Museum's collection. These consist of GLORIA ROMANORVM (2), VICTORIA AVGGG (2) and SALVS REIPVBLICAE (1), and thus take the dates of issue up to AD 394–95. There are, however, none of Honorius, and no silver issues as are recorded from other watchtower sites. On the other hand, so complete a record is not to be expected in a situation where no excavations have been directly concerned with Roman deposits and where medieval activity may have resulted in the removal of evidence of the Roman period.

Coin data is available from four known watchtower sites — Huntcliff, Goldsborough, Scarborough and Filey (though not all of it at a comparable level of detail or precision) (Table 2).

Although the overall profile of the coins from Whitby Museum of the mid-third century and later differs from those of other watchtower sites, if we limit the comparison to coins of periods XVIII-XXI, the relationships become closer (Table 3).

TABLE 2

	Huntcliff	%	Goldsborough	%	Whitby	%	Scarborough	%	Filey	%
XIII	–		1	4.76	19	15.2	1	1.09	–	
XIV	–		–		2	1.6	–		–	
XV	–		–		14	11.2	–		–	
XVI	–		–		3	2.4	1	1.09	–	
XVII	1	4.00	3	14.29	45	36.0	3(?)	3.26	6	17.14
XVIII	1	4.00	–		15	12.0	11(?)	11.96	3	8.57
XIX	20	80.00	10	47.62	22	17.6	55	59.77	14	40.0
XX	1	4.00	1	4.76	–		1	1.09	1	2.86
XXI	2	8.00	6	28.57	5	4.0	20	21.74	11	31.43
Totals	25		21		125		92		35	

TABLE 3

	XVIII	XIX	XX	XXI
Huntcliff	4.17	83.33	4.17	8.33
Goldsborough	–	58.83	5.88	35.29
Whitby	35.7	52.38	–	11.90
Scarborough	12.64	63.22	1.15	22.99
Filey	10.34	48.27	3.46	37.93

Allowing for some distortion to period XVIII amongst the coins from Whitby Museum, the make-up of the coin population, as well as the distribution between periods, leaves a strong case for supposing that a coastal watchtower was built on the East Cliff at Whitby in the late fourth century; the coin evidence is backed by the discovery in the area of pottery of the late fourth century (Clarke, 1935, 138). Further, although the distance between Goldsborough and Ravenscar is not particularly long by comparison with those between Huntcliff and Goldsborough and between Ravenscar and Scarborough, the prominence of Whitby's East Cliff and the likely significance of the Esk estuary in combination serve to strengthen Whitby's case, although the site itself may well have been lost to coastal erosion.

APPENDIX I

Claudius I	1	
Vespasian	1 (frag)	*RIC* 424
Domitian	1	*RIC* 340
Nerva	1	*RIC* 136
Antoninus Pius	3	inc. *RIC* 636, 904
Marcus Aurelius	1	*RIC* 1120
Elagabalus	1	*RIC* 127
Julia Maesa	1	*RIC* 276
Severus Alexander	2	*RIC* 456, 642
Philip I	1	(Greek coin from Antioch)
Trajan Decius (?)	1	(Alexandrian)
Gallienus	1	*RIC* 321
Claudius II	4	inc. *RIC* 50, 65, 139
Divus Claudius	1	*RIC* 260
Victorinus	3	*RIC* 55, 67, 78
Tetricus I	3	*RIC* 56, 100, 145
Tetricus II	1	
Unassignable Radiate copies	3	
Unassignable Alexandrian coins	2	
Probus	1	*Milne* 4631
Carausius	1	*RIC* 91
Constantius I	1	*RIC* VI (Lyons), 53a
Constantinian		
SOLI INVICTO	1	*RIC* VI (Trier), 898
SOLI INVICTO COMITI	7	inc. *RIC* VII (London), 17, (Trier), 40, 42, 70
MARTI CONSERVATORI	1	
VIRTVS EXERCIT	1	*RIC* VII (Trier), 249
BEATA TRANQVILLLITAS	2	inc. *RIC* VII (Trier), 389
Illegible	1	
PROVIDENTIAE AVGG	1	
PROVIDENTIAE CAESS	2	*LRBC* I. 5, 1161
GLORIA EXERCITVS (2 standards)	9	inc. *LRBC* I. 180, 182, 542, 1428
Victory on prow	11	inc. *LRBC* I. 52 (5), 185 (2), 1220, 1360
She-wolf and twins	3	*LRBC* I. 70, 184, 745
GLORIA EXERCITVS (1 standard)	11	inc. *LRBC* I. 90, 102, 565, 670, 1468

PAX PVBLICA	1	*LRBC* I. 104
VICTORIAE D D AVGG Q N N	7	inc. *LRBC* I. 138 (2), 153, 264
FEL TEMP REPARATIO (Fallen Horseman)	5	inc. *LRBC* II. 253
FEL TEMP REPARATIO (Hut)	3	inc. *LRBC* II. 29 (2)
Magnentius	6	*LRBC* II. 20, 49, 50, 56, 214, 431
Decentius	1	*LRBC* II. 444

Valentinianic

GLORIA ROMANORVM	3	inc. *LRBC* II. 484
SECVRITAS REIPVBLICAE	9	inc. *LRBC* II. 82, 96, 280 (2), 502, 2664
GLORIA NOVI SAECVLI	5	inc. *LRBC* II. 503, 505, 523a (2)
Theodosius	3	*LRBC* II. 160, 166, 804
Theodosian	1	
Arcadius	1	*LRBC* II. 161

These are distributed as follows:

I (–AD 41)	–
II (41–54)	1
III (54–68)	–
IV (69–96)	2
V (96–117)	1
VI (117–38)	–
VII (138–61)	3
VIII (161–80)	1
IX (180–92)	–
X (192–222)	2
XI (222–35)	2
XII (235–59)	2
XIII (259–75)	18
XIV (275–94)	2
XV (294–24)	14
XVI (324–30)	3
XVII (330–46)	42
XVIII (346–64)	15
XIX (364–78)	19
XX (378–88)	–
XXI (388–)	5

APPENDIX 2

The following provenances of ten Roman coins appear to be secure:

Claudius I (Æ)	Cliff at Saltwick
Vespasian (Æ)	Mayfield (1877)
Domitian (Æ)	Harbour (1931)
Hadrian (Æ)	Backdale (before 1930)
Hadrian (Æ)	Whitby-area
Antoninus Pius (Alexandrian)	West Cliff (1935)
Alexander Severus (Æ)	Whitby-area
Claudius II (Alexandrian)	Beach
Licinius I (Æ)	Pier Lane
Constantine II (GLORIA EXERCITVS — 2 standards)	Jolly Sailor Hotel (1928)

The Museum also has another group of 44 unprovenanced Roman coins, most of which are untypical of the bulk of the collection; some of them may conceivably have derived from hoards, or the coins may represent a donated collection. In any case, because of the chronological distribution of these coins, their inclusion would not make a great deal of difference to the main thrusts of this paper, and none at all to the matter of a late period of Roman occupation. The coins are listed below in abbreviated form:

Republican	5	(4 Æ; 1 Æ)
Augustus	1	(Æ)
Claudius I	1	(Æ)
Vespasian	1	(Æ)
Domitian	2	(Æ; Æ)
Nerva	1	(Æ)
Trajan	2	(Æ)
Hadrian	1	(Æ)
Sabina	1	(Æ)
Antoninus Pius	2	(Æ; Æ)
Faustina I	3	(Æ)
Marcus Aurelius	3	(Æ)
Lucilla	1	(Æ)
Commodus	1	(Æ)
Crispina	1	(Æ)
Septimius Severus	1	(Æ)
Julia Domna	1	(Æ)
Caracalla	2	(Æ)
Geta	1	(Æ)
Elagabalus	1	(Æ)
Julia Sohaemias	1	(Æ)
Maximinus	1	(Æ)
Gordian III	2	(Æ; Æ)
Philip I	1	(Æ)
Trajan Decius	2	(Æ)
Volusian	2	(Æ; Æ)
Valerian	1	(Æ)
Maxentius	1	(Æ)
Constantine I	1	(Æ)

(There was also a Greek coin attributed to Alexander the Great)

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THE DESIGN AND CONSTRUCTION OF THE ROMANESQUE CHURCH OF ST MARY'S ABBEY, YORK

By Christopher Norton

The two grandest buildings ever to grace the skyline of the city of York were started within a few years of each other towards the end of the eleventh century. The Romanesque cathedral of Archbishop Thomas of Bayeux was gradually replaced in a succession of piecemeal reconstructions which resulted in the Gothic Minster which we see today. Long the subject of speculation, the outlines of the Romanesque church have finally been revealed in the major excavations carried out under the Minster in recent decades and in the subsequent publication.[1] The contemporary church at St Mary's Abbey, begun by Abbot Stephen of Whitby, was destroyed in a single campaign towards the end of the thirteenth century which resulted in the construction of a complete new Gothic church, the remains of which still stand in the Museum Gardens. Practically nothing of the Romanesque church was preserved above ground level, and its rediscovery has been a slow and fragmented process. Sections of the foundations were uncovered in different campaigns of excavation between the 1820s and the 1950s, and it is only recently that the evidence, published and unpublished, has been brought together to make possible a re-assessment of the Romanesque church.[2]

The known foundations consist of almost all of the eastern arm of the church east of the crossing, and various sections of the foundations of the arcades and south wall of the nave (Fig. 1). Since it is clear that the nave and transepts of the Gothic church were built over the foundations of its predecessor (though on a slightly different alignment), it is possible to reconstruct the church in its entirety, in its broad outlines at least. Unlike the unusual and rather idiosyncratic Romanesque Minster, the church of St Mary's Abbey was of standard basilican form with an aisled nave, projecting transepts flanking, presumably, a central crossing tower, and a graduated series of seven apsidal chapels to the east. The first two chapels on either side opened off the transepts, the outermost ones being distinctly smaller than their neighbours. The third chapel on either side, flanking the chancel and corresponding to the nave aisles, projected further eastwards and, though apsidal on the inside, was squared off on the outside. The chancel, which was probably separated from its flanking chapels by solid walls, terminated in a semi-circular apse almost the width of the central vessel of the church. The projections of the two transepts beyond the aisles were roughly square in plan. The regular aisled nave was presumably of eight bays, like its Gothic successor, and like it would probably have had four doorways: two in the south aisle wall in the first and sixth bays opening into the cloister; a central west doorway; and a northern entrance in the seventh bay of the north aisle wall. There

1. D. Phillips, *The Cathedral of Archbishop Thomas of Bayeux: Excavations at York Minster*, vol. 2 (Royal Commission on the Historical Monuments of England) (London, 1985).

2. C. Wilson and J. Burton, *St Mary's Abbey, York* (Yorkshire Museum, York, 1988), p. 7; C. Norton, 'The buildings of St Mary's Abbey, York and their destruction', *Antiquaries Journal*, vol. LXXIV (1994), pp. 256–88, esp. pp. 257–64; J. Bilson, 'The eleventh-century east-ends of St Augustine's, Canterbury and St Mary's, York', *Archaeological Journal*, vol. LXIII (1906), pp. 106–16.

were apparently no western towers. In plan, therefore, the church conformed to a well-known Anglo-Norman Romanesque type. The purpose of the present note is to explore what can be deduced from the known foundations about the process of design, and to clarify the evidence for the chronology of construction.

The designs of medieval churches were usually drawn up by means of geometrical methods using rulers, compasses and set-squares.[3] A series of geometrical shapes and proportions could be used to create a design which could, theoretically, be built on any scale. Thus the basic building blocks were such simple shapes as squares, rectangles, triangles and circles, which could be related to each other by a series of geometrical proportions, such as 1 : 2, 2 : 3, 3 : 5, 1:$\sqrt{2}$ (1 : 1.4142), or 2:$\sqrt{3}$ (2 : 1.732). These last two, which arithmetically appear very complex, are geometrically very simple, being respectively the proportion of the side of a square to the diagonal of the same square (using Pythagoras' theorem), and the proportion of the side of an equilateral triangle to the height of the same triangle (Fig. 2a, c). The system can best be understood by envisaging the steps by which the church of St Mary's Abbey could have been designed.

Once the master mason and the abbot have agreed on the basics of the plan and scale of the church, the master mason has to translate the rough ideas into a working design. The first stage will be to work out the overall plan of the church, before proceeding to the details. Let us assume that he starts with the width of the nave and the chancel, which appears to have been a common starting point. At this stage he is dealing not with actual dimensions, but only with the geometry of the plan. The width of the nave and chancel can be assigned a value x. From this it easily follows that the central crossing tower will be a square of dimensions $x \times x$ (Fig. 3a). The width of the aisles can then be fixed at half the width of the central vessel, i.e. $\frac{1}{2}x$. The total width of the church, nave and aisles, will therefore be $2x$ (Fig. 3b). Next, the length of the eastern arm can be determined. The length of the chapels flanking the chancel from the eastern side of the crossing can be x, and the length of the chancel $2x$. This means that, if the crossing is a square of $x \times x$, the eastern arm is inscribed within a square $2x \times 2x$ (Fig. 3c). Then the transepts. The transept projections can be planned as squares of equal size to the crossing, $x \times x$, and the main transept chapel on either side can be designed as half the length of the chapels flanking the chancel, $\frac{1}{2}x$ (Fig. 3d). The east-west width of the transepts including the projecting chapels, $1\frac{1}{2}x$, will therefore be the same as the north-south length of the transepts from the end walls to the crossing; and the total width of the church across the transepts will be $4x$, twice the width of the main body of the church.

Up to this point, the mason has turned the design in his mind into an outline sketch using a series of extremely simple shapes and proportions — in fact, nothing more complex than squares and rectangles in units of $\frac{1}{2}$, 1 and 2. In order to translate the sketch into a working drawing from which, ultimately the church can be built, he will need to provide some actual dimensions, by giving an arithmetical value to x. He will also have to start thinking about the thickness of the walls, since so far he has no more than a linear sketch. To build the church, actual dimensions are needed both for walls

3. The methodology for analysing the dimensions and proportions of medieval buildings has been most fully elaborated by Professor Peter Kidson and Professor Eric Fernie; see for instance T. Cocke and P. Kidson, *Salisbury Cathedral: Perspectives on the Architectural History* (Royal Commission on the Historical Monuments of England, London, 1993), pp. 62–82; E. Fernie, 'Historical metrology and architectural history', *Art History*, vol. I.4 (1978), pp. 383–99; *id.*, 'A beginner's guide to the study of architectural proportions and systems of length', in *Medieval Architecture and its Intellectual Context: Studies in Honour of Peter Kidson*, ed. E. Fernie and P. Crossley (London, 1990), pp. 229–37; *id.*, *An Architectural History of Norwich Cathedral* (Oxford, 1993), esp. pp. 94–100. I am indebted to Professor Fernie for his comments on this paper.

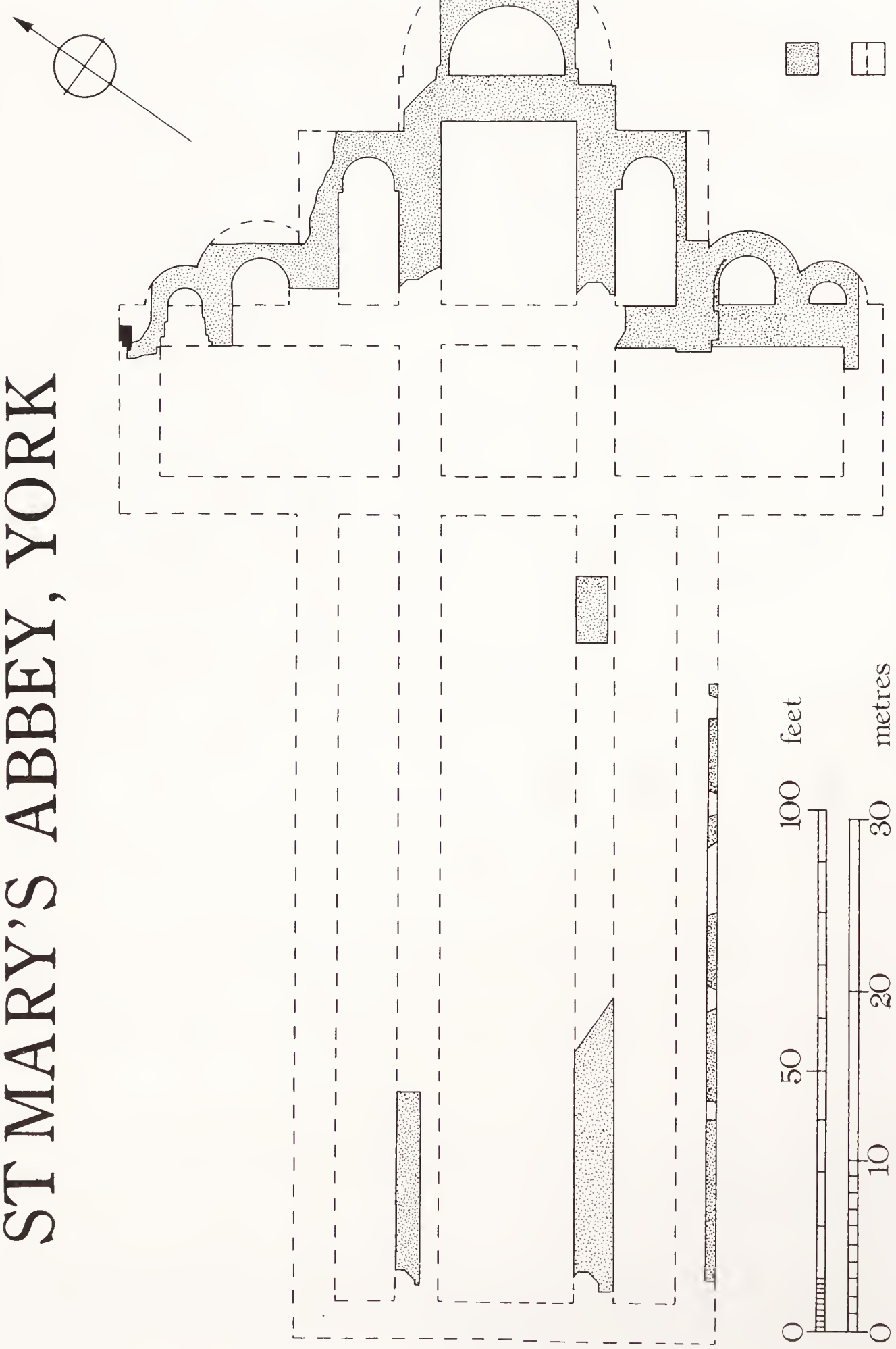


Fig. 1. Plan of the Romanesque abbey church of St Mary's, York at foundation level.

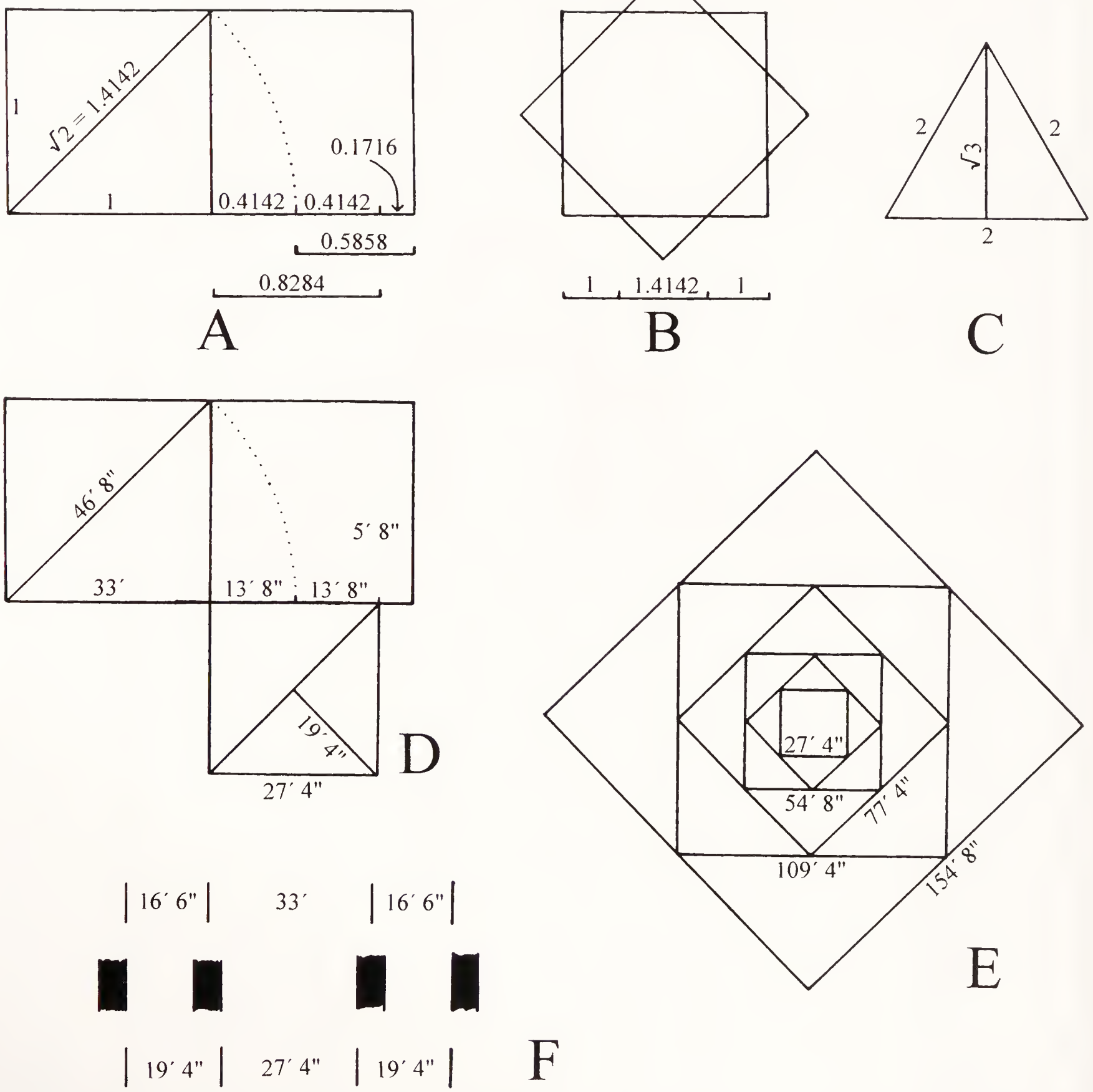


Fig. 2. (a–c) Diagrams showing common geometric ratios. (d–e) Diagrams showing derivation of dimensions from a square of 33 ft and 27 ft 4 ins. (f) Diagram showing dimensions across the chancel/nave and flanking chapels/aisles, with proportions of 1 : 2: 1 (above) and 1 : 1.4142 : 1 (below), assuming total interior width of 66 ft and wall-thicknesses of 5 ft 8 ins (not to scale).

and for voids.[4] By the same token, it is by measuring an actual building and working out the dimensions and proportions that it is possible for us to work backwards to deducing the design stages followed by the mason.

4. It may be noted that the sketch-book of Villard de Honnecourt of about 1230 from northern France includes both church ground-plans showing the thickness of the walls, much like any modern architectural plan, and one simple linear sketch-plan of a church comparable to my Fig. 3: see H. R. Hanloser, *Villard de Honnecourt*, 2nd edn (Graz, 1972), plates 28–33.

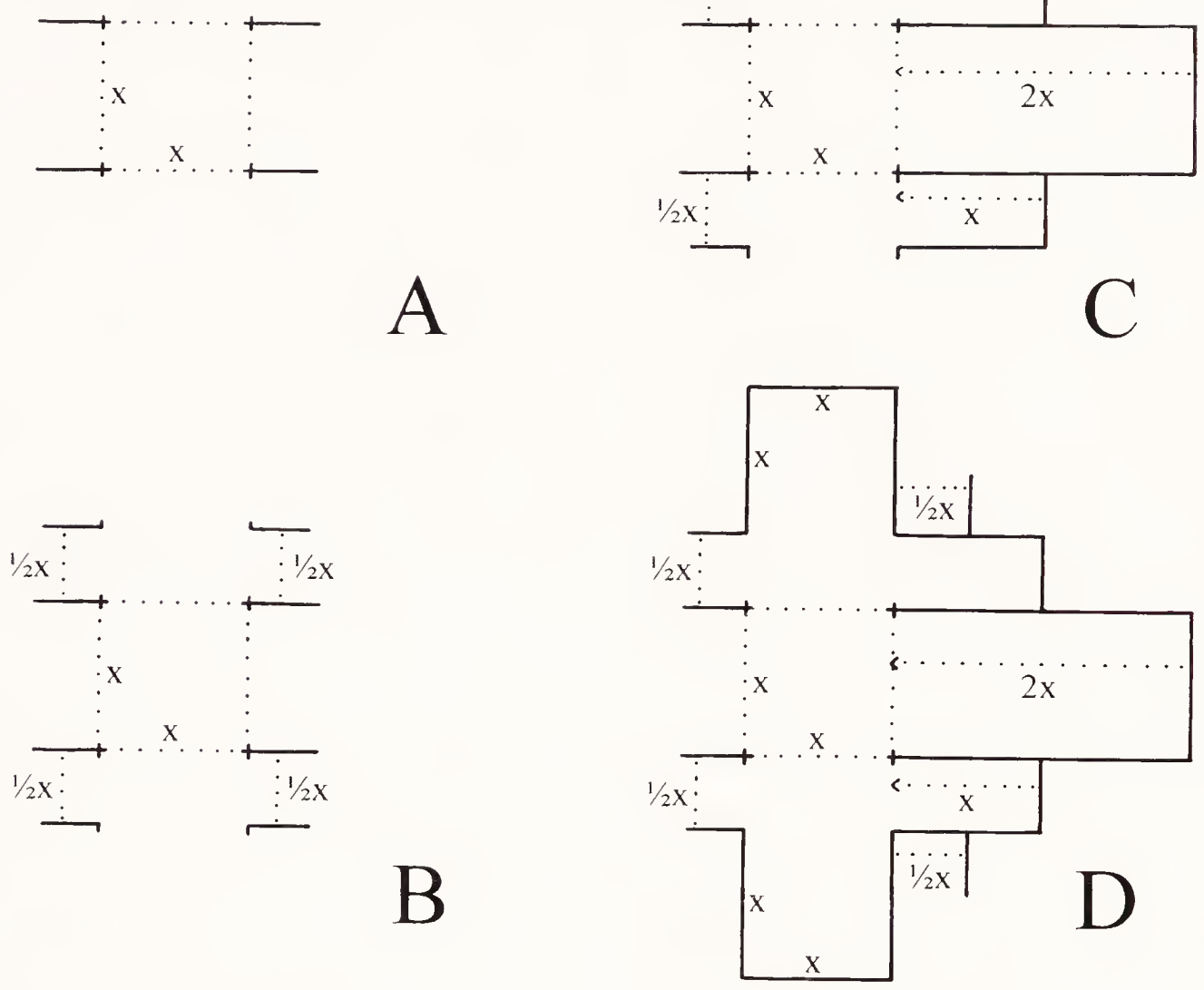


Fig. 3. Sketch diagrams of possible phases in the design of the plan of the abbey church of St Mary's, York.

It is no easy matter to measure a great cathedral or abbey church; equally, it is unrealistic to suppose that the measurements of the actual buildings will correspond precisely to the designed dimensions, in view of the inevitable variations and deviations which are bound to occur in structures which may be hundreds of feet long. However, where dimensions have been established, they usually turn out to be within a few inches of the theoretical values. The more consistently this is the case, the more convincing the explanation. At St Mary's Abbey, all we have to go on is a composite plan, deriving from a series of different excavations, which shows only parts of the church, and then only at foundation level. However, the dimensions which can be derived from the plan are sufficiently consistent and convincing to encourage us to proceed with some confidence.[5] The most reliable dimension that can be measured is the width of the chancel. The distance between the centre of the foundations of the north and south chancel walls should correspond to the width of the structure above. It is approximately 33 ft;[6] so, in terms of our previous diagram, $x = 33$ ft. If we assume that the inner and outer faces of the walls were normally set back a foot or so from the faces of the foundations,[7] the following dimensions appear to fit exactly, as can be seen from Fig. 4, where the dimensions which have been calculated have been marked on the plan of the church.

The central vessel is 33 ft (x) wide, measuring from the middle of the chancel walls. From this it follows that the crossing is a square 33 ft by 33 ft (measuring from the centre points of the crossing piers), and that the central vessel of the nave is also 33 ft wide. The chancel aisles are 16 ft 6 ins wide ($\frac{1}{2}x$), measuring to the assumed inner faces of the outer walls, and they project 33 ft (x) east of the east side of the crossing (again measuring to the inside of the apse). The assumed inner face of the main apse is 66 ft ($2x$) east of the east side of the crossing, and therefore 99 ft ($3x$) east of the west side of the crossing.

Before proceeding any further, it is necessary to establish the thickness of the walls. At this point we encounter for the first time the ratio $1:\sqrt{2}$ (1 : 1.4142), the ratio between the side of a square and its diagonal. All of the following dimensions can be derived from 33 ft using this ratio or its derivatives, as can be seen from the accompanying diagram (Fig. 2d,e). 33 ft × 1.4142 = 46 ft 8 ins. Taking away 33 ft, this leaves 13 ft 8 ins (= 33 ft × 0.4142). This, it can be suggested, will be the interior width of the chapels flanking the chancel from the outer face of the inner wall to the inner face of the outer wall. The same dimension, 13 ft 8 ins, will be half of the width of the central vessel, measuring between the inner faces of the two walls. The central vessel will therefore measure 13 ft 8 ins × 2 = 27 ft 4 ins. Out of a total width of the eastern arm between the inner faces of the outer walls of 66 ft, 13 ft 8 ins + 27 ft 4 ins + 13 ft 8 ins = 54 ft 8 ins are taken up with the voids of the aisles and central vessel. The two dividing walls or arcades must therefore measure 11 ft 4 ins between them, or 5 ft 8 ins each. Another way of arriving at the same figures is to say that the ratio of the width of each flanking

5. The plan of the eastern arm is derived from plans of three different excavations carried out between 1827 and 1912. The fact that those plans show the Romanesque east end at a slight angle to the axis of the Gothic eastern arm increases our confidence in their reliability, since the significance of this deviation has only been recently understood or even, it seems, noticed (Norton, *loc. cit.*).

6. This dimension is taken from the plans of the early twentieth-century excavations (Norton, *op. cit.*, p. 283, note 4). The width of the Gothic nave can be measured from the *in situ* west responds of the north and south arcades incorporated in the surviving fragment of the west wall of the nave. From the centre of one respond to the centre of the other is 35 ft 4 ins. However, the plans of the 1950s excavations show that the Gothic nave was about two feet wider than its Romanesque predecessor (see Norton, *op. cit.*, fig. 1), presumably because the Gothic arcade walls were rebuilt thinner than those of the Romanesque church. So an estimate of 33 ft for the width of the Romanesque nave cannot be far off.

7. The foundations throughout the church are generally about 8 ft wide. The plan of the principal chapel in the south transept (see note 5) shows the inner face of part of the north wall of the chapel, set back a distance of 1 ft 3 ins from the face of the foundations.

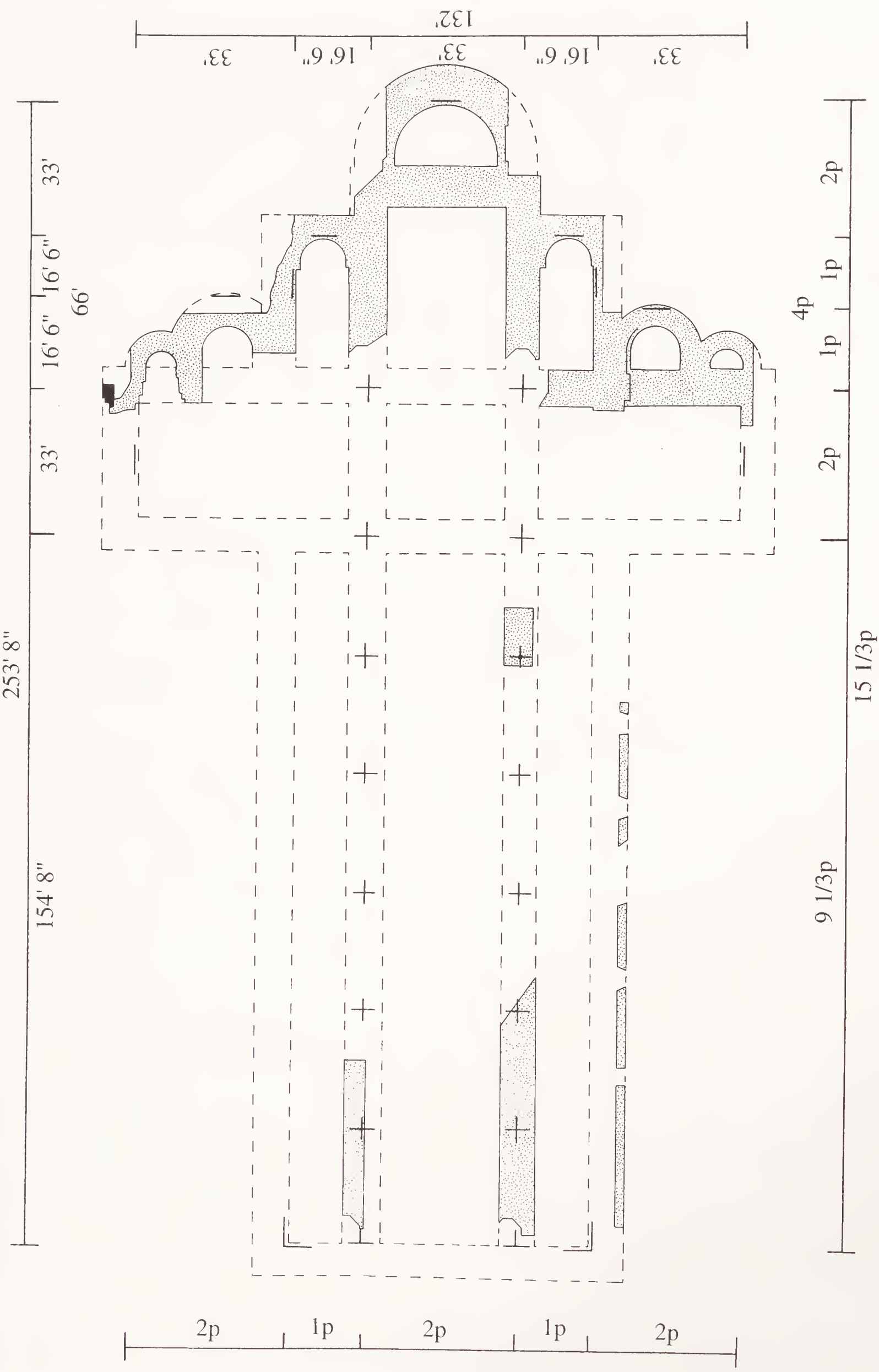


Fig. 4. Plan of the Romanesque abbey church of St Mary's, York at foundation level, with suggested dimensions marked: above and to the right, using feet and inches; below and to the left, using perches.

chapel to the width of the chapel plus the dividing wall is 1 : 1.4142, for 13 ft 8 ins × 1.4142 = 19 ft 4 ins, and 13 ft 8 ins + 5 ft 8 ins = 19 ft 4 ins. Or again, 19 ft 4 ins × 1.4142 = 27 ft 4 ins, so the dimensions of the aisles plus the dividing walls or arcades and the width of the central vessel, namely 19 ft 4 ins : 27 ft 4 ins : 19 ft 4 ins, are in the ratio 1 : 1.4142 : 1. Arithmetically, these figures may seem complex to derive: geometrically, they are very simple. For a square revolved on its central point by 45° produces three dimensions precisely in the proportions 1 : 1.4142 : 1 (see Fig. 2b). So a square of 66 ft (i.e. the interior width of the church) turned by 45° produces the dimensions 19 ft 4 ins : 27 ft 4 ins : 19 ft 4 ins (Fig. 2f). The width of the dividing walls or arcades and of the aisles follow automatically.[8]

If we take the thickness of the outer walls to be 5 ft 8 ins as well, the total exterior width of the chancel and flanking chapels will be 66 ft + 11 ft 4 ins = 77 ft 4 ins. This may seem a random number, but it is the diagonal of a square of 54 ft 8 ins (i.e. 54 ft 8 ins × 1.4142 = 77 ft 4 ins), and 54 ft 8 ins is twice the width of the central vessel, 27 ft 4 ins, or, alternatively, equals the clear interior width of the nave and aisles (13 ft 6 ins + 27 ft 4 ins + 13 ft 6 ins). Furthermore, 27 ft 4 ins ÷ 1.4142 = 19 ft 4 ins, which is (as we have seen) the width of the flanking chapel plus one wall (13 ft 8 ins + 5 ft 8 ins); and 19 ft 4 ins multiplied by four is 77 ft 4 ins. Indeed, the width of the church can be read in a number of different ways which represent a number of different ratios. The total interior width, 66 ft, can be divided into central vessel and chapels down the centre of the dividing wall or arcade, which gives a ratio of 1 : 2: 1 (16 ft 6 ins : 33 ft : 16 ft 6 ins) (Fig. 2f). Or, as we have seen, it can be read as a central vessel of 27 ft 4 ins flanked by aisles of half the width plus arcades/walls totalling 19 ft 4 ins, which gives a ratio of 1 : 1.4142 : 1 (19 ft 4 ins : 27 ft 4 ins : 19 ft 4 ins) (Fig. 2f). And 66 ft × 1.1716 gives the total exterior width, 77 ft 4 ins. All of these measurements will apply equally to the eastern arm and to the walls, aisles, arcades and central vessel of the nave.

Having come this far, it is possible to complete the design of the transepts. The east and west walls of the transept (which is aisleless) align with the centres of the piers of the central tower. 33 ft (x) will therefore be the width of the transepts from the middle of one wall to the middle of the other. Assuming walls of the same thickness, this gives a total of 33 ft + 5 ft 8 ins = 38 ft 8 ins for the exterior width, and 33 ft − 5 ft 8 ins = 27 ft 4 ins for the interior width. 27 ft 4 ins is, as we have seen, the same as the interior width of the chancel, and 38 ft 8 ins equals the chancel plus the two flanking walls. Furthermore, 38 ft 8 ins equals 27 ft 4 ins × 1.4142. The length of the transepts is again 33 ft (x), measuring from the inner face of the aisle walls to the inner face of the end walls: the outer face of the transept walls will again be at 38 ft 8 ins assuming the same thickness of wall. The interior dimensions of the transepts are therefore 49 ft 6 ins ($1\frac{1}{2}x$) × 27 ft 4 ins ($x \times 0.8284$) from the end wall to the centre of the crossing arch, and 33 ft × 27 ft 4 ins excluding the space which is the equivalent to the aisle: this is half the interior length of the chancel east of the crossing (66 ft x 27 ft 4 ins). Or again, measuring from the outer face of the aisle wall or respond, the interior of the transept is 27 ft 4 ins square. The principal transept chapel, it was suggested above, is likely to have been designed as 16 ft 6 ins ($\frac{1}{2}x$) in length (Fig. 3d). However, it appears from the plan that in this case, uniquely, this dimension gives the *exterior* face of the apse wall, not the interior face (Fig. 4). The walls of the apses are thinner than the other exterior walls, as they bear little weight. The main eastern chapel off each transept is likely to have been

8. Exactly the same system of proportions is used to determine the dimensions of the nave, aisles and arcades at Norwich Cathedral (Fernie, *Architectural History*, pp. 95–96).

13 ft 8 ins wide. If the dividing wall or pier is again 5 ft 8 ins wide, then the outermost chapel will be 8 ft wide (again a ratio of 1 : 1.4142).

It remains to establish the length of the nave. The Romanesque foundations of the west wall have not been uncovered, so the precise length of the nave is not known. But the foundations of the Gothic west wall are about 15 ft thick, and presumably enclose the Romanesque foundations. As the eastern face of the Gothic west wall is close to the east face of the Gothic foundations, it can be assumed that the Romanesque foundations and the eastern face of the Romanesque west wall were both slightly further to the west. This means that the Romanesque nave must have been slightly over 150 ft in length. It is possible to suggest that the theoretical length of the Romanesque nave from the west side of the crossing to the interior of the west wall was 154 ft 8 ins. This represents eight bays 19 ft 4 ins wide, this being a dimension we have already met in the eastern arm. And it would give an interior dimension for the main nave bays of 27 ft 4 ins × 19 ft 4 ins, and for the aisle bays of 13 ft 8 ins × 19 ft 4 ins: in each case, the ratio between the two dimensions is 1 : 1.4142. 154 ft 8 ins is also exactly twice the exterior width of the nave and aisles, assuming them to be of the same width as the chancel and flanking chapels, which has already been calculated at 77 ft 4 ins. The nave therefore can be understood as a double square.

One final dimension may be suggested. In monasteries, the length of the cloister compared to the length of the nave is sometimes in the ratio of 1 : 1.4142. To put it another way, the length of the nave is the same as the diagonal of the cloister.[9] The foundations of the Romanesque cloister have not been revealed, and the plan of the Gothic cloister exhibits certain irregularities which have not been explained (and which have been 'regularised' on some of the published plans).[10] Nevertheless, from the angle of the south aisle and the south transept, a distance of 154 ft 8 ins diagonally across the cloister arrives at a point close to the south-west corner of the Gothic cloister. So it is reasonable to suppose that this was how the cloister was envisaged on the original sketch design (Fig. 3e). A square with a diagonal of 154 ft 8 ins has sides of 109 ft 4 ins (Fig. 2e). In terms of the original geometric design, 154 ft 8 ins $= 4\frac{2}{3}x$, and 109 ft 4 inches $= 3\frac{1}{3}x$.[11]

Whether or not the precise dimensions and the precise steps in the design process which I have suggested are correct, it is by now reasonably clear that St Mary's Abbey church was designed using a system of geometric shapes and proportions which, when translated into actual dimensions, reveals itself through the repeated use of a related set of figures and results in the repeated appearance of certain ratios and proportions. On the large scale, we can identify many common proportions linking the various parts of

9. As at Norwich, for instance (Fernie, *Architectural History*, pp. 92–94).
10. Norton, *op. cit.*, pp. 264–68.
11. In several contemporary churches, the length of the nave multiplied by 1.4142 gives the position of the chord of the main apse. But Norwich, Ely and Winchester (see Fernie, E., 'The grid system and the design of the Norman Cathedral', in *Medieval Art and Architecture at Winchester Cathedral*, ed. T. A. Heslop and V. A. Sekules (British Archaeological Association Conference Transactions vol. 6) (1983), pp. 13–19, and references cited in notes 3 and 18) all have exceptionally long naves, where these proportions generate generous eastern arms. This is not the case at St Mary's Abbey. 154 ft 8 ins × 1.4142 gives 218 ft 9 ins, a point well to the west of the chord of the main apse. The precise position of the chord cannot be established from the plan, but the apse was evidently narrower than the chancel, which measured 27 ft 4 ins wide. One might suggest that the apse was 22 ft 8 ins wide, with a radius of 11 ft 4 ins, since this would place the chord of the apse 54 ft 8 ins east of the east crossing arch. This would make the interior length for the chancel (minus the apse) twice its width (27 ft 4 ins). It would mean that the eastern arm of the church east of the crossing (minus the apse) would be exactly 100 ft less than the nave of the church west of the crossing (154 ft 8 ins). And it would also mean that the eastern arm of the church from the west side of the crossing (but excluding the apse, which was often treated in design terms as an appendage), measuring 87 ft 8 ins, was in a ration of approximately 8 : 14 to the length of the nave (154 ft 8 ins). 8 : 14 was a recognised approximation for the common ratio $\sqrt{3}$.

the church: 1 : 2, 2 : 3, 3 : 4, 6 : 7 (width across transepts to length of nave), 9 : 14 (length of the church east of the west side of the crossing to length of nave), and so on, as well as $1:\sqrt{2}$ (1 : 1.4142) and all its associates. This system of design can be identified at a number of Romanesque churches, but it should be stressed that there was nothing mechanical about the process, which could be used to design buildings of quite different shapes, sizes and proportions.[12] The master mason still had to create in his mind the overall shapes and proportions of the church, so as to reconcile the needs of the patrons, his own aesthetic and architectural aims, and the technical limitations of construction at the time. But by drawing out a schema of shapes, dimensions and proportions in advance (not entirely dissimilar, perhaps, to Fig. 2), he had a number of ready-made lengths from which he could chose whatever dimension was appropriate for his needs. This could be transferred instantly onto a drawing using a pair of compasses. When the time came to work out precise dimensions, it was only necessary to establish the entire series of numbers used on the geometric schema once, and then apply them to the design. At a later stage, for the same reasons, the actual setting out of the walls on site would be facilitated by this system. By using shapes and numbers in this way, therefore, the master mason made his own job much simpler, and avoided the necessity for choosing dimensions at random. The result was both easier, and much more elegant mathematically and intellectually, in so far as proportion and relation was built into the structure from the outset.

For those of a mystical or symbolic frame of mind, such a system could have seemed not just elegant or even beautiful, but to contain deeper meanings than the purely practical. For those of a Platonising bent, this kind of system of design could have seemed to echo their understanding of the cosmos as a whole as being founded upon number and proportion. The personification of Wisdom in the Book of Proverbs (8.27–29) describes the divine act of creation in geometric terms:[13]

When He prepared the heavens, I was present;
When with a certain law and compass He enclosed the depths;
When He established the sky above, and poised the fountains of waters;
When He compassed the sea with its bounds, and set a law to the waters that they should not pass their limits;
When He balanced the foundations of the earth;
I was with Him forming all things, and was delighted every day, playing before Him at all times.

Similarly, the famous passage at the end of the Book of Job refers to the divine creation in terms of architectural design and construction (Job 38.4–7):

Where wast thou when I laid the foundations of the earth?
Tell me if thou hast understanding.
Who hath laid the measures thereof, if thou knowest?
Or who hath stretched the line upon it?
Upon what are its bases grounded?

12. Compare two almost contemporary buildings: Norwich Cathedral, very different in design and proportion (Fernie, *Architectural History*), and Selby Abbey church, which is in overall size and shape very similar to St Mary's Abbey, but is designed using different proportions and dimensions (see E. Fernie, 'The Romanesque church of Selby Abbey', in *Yorkshire Monasticism: Archaeology, Art and Architecture, from the seventh to sixteenth centuries*, ed. L. R. Hoey (British Archaeological Association Conference Transactions, vol. 16 (1995), pp. 40–49.)

13. Versions from the Douay Rheims Bible, being a translation of the Latin Vulgate. It may be noted in passing that one of the manuscripts which survives from St Mary's Abbey is a much-thumbed copy, of perhaps early twelfth-century date, of the Latin translation of Plato's *Timaeus*. The *Timaeus* was the only Platonic dialogue accessible in the West at the time, and it describes the creation of the cosmos by the divine demiurge — a philosophical parallel to the biblical creation passages. See *A Catalogue of the Manuscripts preserved in the Library of the University of Cambridge*, 5 vols (Cambridge, 1856–67), vol. 2, p. 277, ms Ee VI 40.

Or who laid the corner stone thereof,
When the morning stars praised me together,
And all the sons of God made a joyful melody?

It is these images which underlie the pictures of God as a master mason with compass in his hands, and they could give encouragement to the view that proportion and number could contain meaning. In the case of the design of St Mary's Abbey, the two most significant whole numbers are 27 ft and 33 ft (the width of the chancel inside the flanking walls, and from the middle of the walls). 27 is nothing other than $3 \times 3 \times 3$, whose Trinitarian meaning needs no explanation, while 33, as well as containing only the digit 3, is the product of 3 and 11, in which could therefore be seen concealed the Trinitarian 3-in-1. Likewise the interior length of the transepts, 132, contains the numbers referring to the Three Persons of the Trinity. 1, 2 and 3 added together make 6; multiplied together they also make 6; 66 is half of 132. Sixty-six is also twice 33, while the number 99 is composed of 3×3 plus 3×3. In round numbers, 33 is one third of 100. The square root of 100 is 10. Ten is the sum of the numbers 2, 5 and 3; and 253 ft is the total interior length of the church. And so on. We can only speculate to what extent considerations such as these would have been of any interest either to the masons (whose job was fundamentally practical) or to Abbot Stephen and his monks.

Why did the masons use the numbers 27 and 33 as the basic units of length? In many cases, the dimensions of churches were pre-determined by pre-existing structures which were being added to or replaced, especially in such fundamentals as the width of the chancel. St Mary's Abbey church was a completely new beginning, so the masons could have chosen any dimensions they wanted. The reasons are probably practical. The dimensions 33 and 27 seem to recur in a number of medieval churches, and it is probably because of their utility. It is for the same reason that the basic unit is probably exactly 33 ft, rather than exactly 27 ft. 33 ft, as we have seen, gives rise to a whole series of other numbers, which, if they are not whole numbers, all approximate very closely to simple fractions of a foot, that is, one-third, one half, two-thirds or 4 ins, 6 ins and 8 ins. Thus 27 ft 4 ins is a derivative of 33 ft. By contrast, the same series of calculations starting from 27 ft gives rise to much more variable and awkward numbers. For instance, the equivalent of 33 ft in a series based on 27 ft is 32 ft 7 ins. Thirty-three is simply a very much easier number to start from. It also, of course, approximates to one-third of 100, and is exactly 11 yards, which is one-twentieth of a furlong, and a furlong is one-eighth of a mile; so 33 ft is exactly 1/160th of a mile. On both the large scale and the small scale, 33 is a much more convenient number to start with.

One corollary of all this is that St Mary's Abbey was indeed designed using standard English feet. This may seem unsurprising, but it is generally said that the standard English foot was introduced by Henry I. However, it has been argued that the standard foot was in use prior to his reign, and it appears to be the basic unit underlying the designs of some eleventh-century buildings.[14] The evidence of St Mary's Abbey supports this view.

14. R. D. Connor, *The Weights and Measures of England* (London, 1987), esp. chs. 3 and 6; P. Kidson, 'A metrological investigation', *Journal of the Warburg and Courtauld Institutes*, vol. 53 (1990), pp. 71–97; Fernie, 'Historical metrology', pp. 388–94. E. Fernie, Anglo-Saxon lengths: the 'Northern' System, the perch and the foot', *Archaeological Journal*, vol. CXLII (1985), pp. 246–54; also J. Bony, 'The stonework planning of the first Durham master', in *Medieval Architecture and its Intellectual Context*, pp. 19–34, esp. p. 32, note 15. Phillips, *Cathedral of Archbishop Thomas of Bayeux*, pp. 193, 197–99 argued that the eleventh-century Minster was designed using a slightly shorter foot, equivalent to about 11.54 standard inches. However, the dimensions given on the tables on pp. 210–13 are consistent with a design based upon the standard English foot. On the possible use of different 'feet' in York at the time of Domesday Book and subsequently, see D. M. Palliser, *Domesday York*, (Borthwick Paper, 78) (York, 1990), p. 17.

This entire analysis has been based on a study of a plan of the foundation level of the Romanesque church derived from several different campaigns of excavation. The internal consistency of the dimensions and proportions may seem, to some, evidence enough of their validity. But theoretical analyses should always be checked against measurements on the ground. Yet how can they be checked against the actual building, when all that remains *in situ* is a single stump of masonry, representing the base of a stepped buttress on the exterior, incorporated into the north wall of the transept of the Gothic church? In fact, since all the above calculations were made, it has become apparent that, by chance, it is possible to make a fairly precise estimate of the position of the interior face of the Romanesque south transept wall, exactly opposite the surviving fragment of the north transept wall. At this point, the base of the wall of the south transept of the Gothic church survives, together with part of a respond. The plan of the 1827–29 excavations shows that the Gothic wall was placed over the foundations of the Romanesque south transept wall, but that the face of the Gothic wall was set back three feet or so from the face of the Romanesque foundation. It can be assumed that the inner face of the Romanesque wall would have been closer to the face of the foundation. A point two feet inside the face of the Gothic wall would be a reasonable estimate: it should be within a foot of the original inner face of the Romanesque wall. A measurement can be taken from that point to the exterior face of the north transept wall fragment.[15] According to the calculations given above, the theoretical distance between these two points should equal the interior length of the transepts plus the thickness of the north transept wall, i.e. 132 ft + 5 ft 8 ins = 137 ft 8 ins. The on-site measurement, which cannot be precise, is 138 ft 4 ins. It also turns out that two other small-scale measurements are available to us, this time precise. A measured drawing of the Romanesque south transept chapels made at the time of the 1827–29 excavations gives the exact width of the larger, inner transept chapel and of the east-west width of the north respond of the main arch into the chapel. The respond should in principle correspond to the thickness of the main transept wall. So, according to the calculations given above, the respond should theoretically be 5 ft 8 ins across, and the chapel should be 13 ft 8 ins wide. The dimensions recorded in the 1827–29 plan are respectively 5 ft 6 ins and 13 ft 6 ins.[16]

Unfortunately, this is not quite the end of it. For the measured width of the respond, 5 ft 6 ins, is exactly one-sixth of 33 ft. Half of 33 ft is 16 ft 6 ins; and 16 ft 6 ins precisely is known to have been used as a standard perch from Anglo-Saxon times right up to the

15. The east-west foundation of the Romanesque south transept wall is shown on the plan published by Wellbeloved, which, though small in scale, is remarkably accurate in its details (C. Wellbeloved, 'Some account of the ancient and present state of the Abbey of St Mary, York ...', *Vetusta Monumenta*, vol. v (1837), pp. 1–7 and plates LI-LX; initially published separately, London, 1829). The base of the Gothic south transept wall (but not, unfortunately, the relevant piece of the Romanesque foundation) was excavated again recently (N. Oakey in *Interim, Bulletin of the York Archaeological Trust*, vol. XII.1 (1987), 8–13) and has been left exposed. It consists of blocks of apparently Romanesque masonry; these I previously suggested might be *in situ* (Norton, *op. cit.*, p. 283, note 15), but re-examination shows that they in fact belong to the Gothic transept wall as correctly stated by Oakey, and are therefore reset. The measurement has therefore been taken from a point 2 ft in from the face of the Gothic wall, corresponding to the inner face of the base of the respond. At the north end, the measurement has been taken from the inner corner of the surviving double-stepped buttress, since the outer wall-face itself has gone. If the buttress had a further step on it, the face of the wall would be about 8 ins further in.

16. Drawing by Eustachius Strickland preserved in the Yorkshire Museum. The face of the chapel foundation and the face of the wall are both shown, on a tiny scale, in the plan published by Wellbeloved, *loc. cit.* The wall-face is set back 1 ft 3 ins from the edge of the foundations (see n. 7). If this were so consistently through the church, it confirms the wall-thickness: since the foundations are about 8 ft wide in all, a set-back of about 1 ft 3 ins on either side would give a wall-thickness of about 5 ft 6 ins or 5 ft 8 ins, as I have suggested on other grounds.

present.[17] Could St Mary's Abbey have been designed using the Anglo-Saxon perch as a basic unit of measurement? In fact, if we assume that all the dimensions of 16 ft 6 ins and 33 ft already calculated remain constant (as being 1 perch and 2 perches exactly), but recalculate the other dimensions assuming a wall-thickness of 5 ft 6 ins (one-third of a perch) — rather than 5 ft 8 ins as proposed above — then it turns out that all the dimensions can be expressed in multiples of one-sixth of a perch (2 ft 9 ins). It is not necessary here to go over all the dimensions again, but the key ones become as follows (previous calculations in brackets):

5 ft 6 ins [5 ft 8 ins]
13 ft 9 ins [13 ft 8 ins]
19 ft 3 ins [19 ft 4 ins]
27 ft 6 ins [27 ft 4 ins]
77 ft 0 ins [77 ft 4 ins]
154 ft 0 ins [154 ft 8 ins]

This means that some of the large dimensions work out more exactly (in terms of feet) than before, i.e. the exterior width of the main body of the church is exactly 77 ft, and the interior length of the nave is exactly 154 ft. On the other hand, these dimensions result in a less precise geometry. For instance, the ratio between the aisle width and the aisle plus arcade, 13 ft 9 ins : 19 ft 3 ins is arithmetically precise at 5 : 7; and 5 : 7 is a recognised approximation to the ratio $1:\sqrt{2}$. However, this is a less exact approximation than that which results from the other set of calculations, i.e. 13 ft 8 ins : 19 ft 4 ins. Similarly, in the nave, eight bays of 19 ft 4 ins gave, as we saw, aisle bays of 13 ft 8 ins × 19 ft 4 ins, and nave bays of 19 ft 4 ins x 27 ft 4 ins, both very close approximations of $1:\sqrt{2}$. The equivalent dimensions using the new figures are 13 ft 9 ins × 19 ft 3 ins and 19 ft 3 ins × 27 ft 6 ins. These are arithmetically precise at 5 : 7 and 7 : 10 respectively, which both approximate to $1:\sqrt{2}$, but less closely.

The differences are, of course, tiny in actual dimensions; not more than 8 ins over the entire interior length of the church. The scale, proportions and dimensions of the church are, in essence, identical using either system. In other words, the basic geometry of the church, as set out above and in Fig. 3, is unaffected; the two sets of figures simply represent two different ways of generating actual dimensions to enable the church to be built physically. The first system, using feet and inches, is geometrically more precise but arithmetically less tidy; conversely, the second system, using perches and fractions thereof, is arithmetically simpler but geometrically less exact. It can only be a matter of judgement as to which system was used to generate the actual dimensions. The two short measurements taken from the remains of the north transept, 5 ft 6 ins and 13 ft 6 ins, are marginally closer to the theoretical values based on the perch (5 ft 6 ins and 13 ft 9 ins) than those based on feet and inches (5 ft 8 ins and 13 ft 8 ins). Late eleventh-century masonry is markedly less exact than that of churches constructed even a few decades later, and much less precise than most later Gothic structures. Mortar joints can easily be half-an-inch thick, and measurements taken from standing buildings suggest something less than exactitude in setting-out and constructing churches. It may therefore be that the geometrically less precise, but arithmetically simpler system of dimensions based on the perch was perfectly adequate, and an easier means of translating the geometry of the design into an actual building.

But if this were so, would it mean that in fact the church of St Mary's Abbey was not designed using standard feet and inches at all; and that, consequently, any possible

17. Fernie, 'Anglo-Saxon lengths', p. 249.

mathematical elegance or symbolic significance in the numbers is totally illusory? It is possible, but not, I suggest, likely. The two systems are not necessarily alternatives, which happen coincidentally to come together at 33 ft = 2 perches. Rather, they could be two ways of describing or envisaging the same dimensions. Just as we might say 5 yards rather than 15 ft, without any suggestion that we are using a completely different set of measures, so perhaps the mason might find it more convenient to think in terms of 1 perch instead of 16 ft 6 ins, or one-third of a perch instead of 5 ft 6 ins. An analogy is provided by pre-decimal coinage. When medieval accountants described a sum of money as 100 marks, it did not mean that they were suddenly abandoning pounds, shillings and pence for a new system. It was just an easier way of referring to two-thirds of £100, or £66 13*s.* 4*d.* Similarly, until very recently, to talk of half-a-crown did not imply a completely different method of reckoning money; it was merely a more convenient way of describing one-eighth of a pound, or 2s. 6d. Crowns and marks are simply different ways of describing certain fractions of the pound; but they still presuppose the same system of pounds, shillings and pence. Likewise, if we take 33 ft as the basic unit of measurement, feet and inches provide convenient small-scale subdivisions. For larger amounts, it may be easier to calculate using larger fractions. One yard is 1/11th of 33 ft; a precise fraction but not a convenient one for calculations. 2 ft 9 ins, however (i.e. half of 5 ft 6 ins or 1/6th of a perch of 16 ft 6 ins), is 1/12th of 33 ft (i.e. 33 ins), a very convenient fraction arithmetically. For although 1.4142 is an irrational number, a close approximation to it is 1 and 5/12ths (1.4166). Similarly, the other numbers which commonly appear as derivatives of $\sqrt{2}$ can also be expressed in fairly close approximations in terms of 12ths: 0.4142 approximates to 5/12ths (0.4166); 0.8284 approximates to 10/12ths; 0.1716 approximates to 2/12ths (0.1666). This means that for any sequence of dimensions generated geometrically using the proportion $1:\sqrt{2}$, it would be possible to calculate close arithmetical approximations, just so long as the basic unit of measurement was divisible into 12ths. Hence the utility of the unit of 33 ft = 2 perches: not only, as we saw earlier, does it generate a useful series of dimensions calculated in feet and inches; it also is divisible into 12ths from which can be generated a simple series of arithmetical approximations to $\sqrt{2}$ and its derivatives. In short, a mason calculating in measures of one-sixth of a perch was not, I suggest, using a different system of measures; he was using the same standard measures as are also expressed in feet and inches, but calculating them according to different fractions of the basic unit of design, 33 ft = 2 perches.

If this is right, the argument over whether masons designed in terms of feet and inches, or of perches and fractions of perches, is in fact a non-issue:[18] they are simply different ways of calculating arithmetically on the basis of an identical system of measures. To design a church in terms of perches is at one and the same time to design in feet and inches, just as an accountant might write 100 marks, but would add up the sum as £66 13*s.* 4*d.*: they are merely different ways of expressing the same thing. All of which means, as regards St Mary's Abbey church, that the design was created geometrically around a system of dimensions and proportions in which x = 33 ft = 2 perches; and that when translating the design into arithmetical values, the mason could have expressed his ideas either in perches and its fractions, or, if he wanted a more exact representation of the geometry of the design, in feet and inches. They provide two alternative methods of turning geometry into arithmetic (Fig. 4).

18. Compare E. Fernie, 'Observations on the Norman plan of Ely Cathedral', in *Medieval Art and Architecture at Ely Cathedral* (British Archaeological Association Conference Transactions, vol. 2, 1979), pp. 1–7, where he rejects the perch at Ely, and Fernie, 'Anglo-Saxon lengths', p. 250 where he accepts it: the measurements themselves are identical.

Work began on the church in 1088. Early in that year William Rufus came to York and participated in a formal foundation ceremony for the abbey, accompanied by a distinguished company of barons and ecclesiastical dignitaries. There has been some uncertainty about the date of the ceremony, since one, rather brief source gives a date of 1089. But this is clearly a late and inaccurate summary.[19] There is no reason to doubt the date of 1088 given in the narrative account of the foundation of the abbey written by Abbot Stephen of Whitby. It has been stated quite frequently that on this occasion William Rufus gave land adjacent to the Church of St Olaf for the construction of the new abbey church. This however is a misunderstanding, partly resulting from the fact that there is a misprint in the printed version of the Latin text. What it actually says is that he was the first person to open the ground for the laying of the foundations of the new church, i.e. he ceremonially cut the first turf to inaugurate the work. The ceremony was probably arranged at short notice to take advantage of the king's presence at York, the establishment of the new monastery having been vigorously opposed by Archbishop Thomas of Bayeux, so it is possible that the design of the new church had hardly progressed beyond the outline stage. However, once begun, there is no reason to suppose that the work was not prosecuted with vigour and determination.

About the stages and speed of construction we know only a little. A charter dated to *c.* 1100–06 recording a donation to the monastery indicates that part of the church was functioning at that time.[20] It states that the charter of donation was ceremonially placed upon an altar — presumably the high altar — in the presence of a large crowd of people in the church. What is also particularly interesting is that among the witnesses to the charter, who are headed by Abbot Stephen, is one *Gerardus cementarius* (mason). It cannot always be assumed that the appearance of a mason among the witnesses of a donation to a church indicates that he was working on that church, since it is often quite unclear where a charter was given. But in this case, since it is stated unequivocally that Gerard the mason was in St Mary's Abbey church along with Abbot Stephen and others, we are justified in identifying him as the master mason in charge of the building. From this it is a short step to propose that Gerard the mason was also the man who designed the church at the outset, although it cannot of course be proved that he had not arrived on the scene subsequently. In either case, it is rare indeed at this early date to be able to identify the master mason of a great Romanesque church.[21]

Another charter provides evidence that work on the church was drawing to a close in the 1120s. It is a charter granting to the abbey the tithes from a certain property to go towards the covering or roofing of the church (*ad ecclesiam cooperiendam*). The grantor was Fulk, steward to the Percies, and it has been dated from the list of witnesses to the period *c.* 1120–35.[22] Now Fulk was the son of Reinfrid, the man who had founded a monastic community at Whitby in the 1070s, a community from which both St Mary's Abbey and Whitby Abbey traced their descent. Reinfrid had entered the religious life in the early 1070s.[23] Unless, when he did so, he abandoned an underage son, Fulk must have been at least 65 years old by 1120. It seems likely therefore that the charter dates closer to 1120 than 1135.

19. The evidence for the foundation ceremony is discussed in Norton, *op. cit.*, pp. 280–82.
20. Printed in *Early Yorkshire Charters*, vol. 2, ed. W. Farrer, (Edinburgh, 1915), p. 133, no. 791.
21. No mason called Gerard earlier than the thirteenth century is listed in J. H. Harvey, *English Medieval Architects: a Biographical Dictionary down to 1550*, 2nd edn. (Gloucester, 1987).
22. Printed in *Early Yorkshire Charters*, vol. 11, ed. C. T. Clay (Yorkshire Archaeological Society Record Series, Extra Series, 9) (1963), pp. 100–101, no. 93.
23. See most recently J. Burton, 'The monastic revival in Yorkshire: Whitby and St Mary's, York', in *Anglo-Norman Durham 1093–1193*, ed. D. Rollason *et al.* (Woodbridge, 1994), pp. 41–52.

This is supported by the account of Archbishop Thurstan's visitation of St Mary's Abbey in October 1132. This was the famous occasion at which a brawl broke out at the packed chapter house and the archbishop was forced to retreat with some of the monks, who went on to become the founders of Fountains Abbey. For our purposes, what is of interest is the information contained in the account relating to the state of the abbey buildings in 1132. When Thurstan and his party were repulsed, he moved from the chapter house into the church through the cloister doorway, that is, evidently, the doorway from the cloister into the church at the east end of the south aisle. Once inside, they barred the door behind them and eventually retreated to the abbey gatehouse, where Thurstan had left his horses.[24] As this is situated near the west end of the church, the implication appears to be that in their retreat Thurstan and his party entered the church through the doorway from the east side of the cloister and left through the west end of the church — either through the main west doorway or the doorway near the west end of the north aisle. In either case, this would imply that they were able to move to and through the west end of the church, which would indicate that the west end was unencumbered with scaffolding or major building activity. Taken in conjunction with Fulk's grant, it suggests that the church was essentially complete by about 1130 (in so far as any church on this scale ever was completed). A roughly forty-year building campaign is reasonable in respect of what is known about the length of building campaigns elsewhere. Thurstan's account also indicates that the chapter house was in use, and in its normal position off the east side of the cloister. It is the earliest evidence we have for the chapter house of St Mary's.

One other date must be mentioned. 1137 appears in all the histories of York as the year in which the city was ravaged by a fire which affected the Minster, St Leonard's Hospital, St Mary's Abbey and 39 other churches. The source for this is a manuscript of the chronicle of John of Worcester which was written around the middle of the twelfth century, and is thus nearly contemporary.[25] A number of ornately carved Romanesque stones from the abbey, which are clearly of twelfth-century date rather than late eleventh, could date from around the middle of the century and could be considered to belong to post-1137 reconstruction work. No trace of any fire has been recorded in the various excavations which have taken place at the abbey, nor is there any other evidence of work on the church around the middle of the twelfth century. Reconstruction on the lines of the eleventh-century foundations need not have left any trace below ground. On the other hand, it is arguable that an error has crept into the record, and that an account of a major liturgical occasion in York such as a grand ceremony of consecration has accidentally passed into history as a conflagration.[26] However this may be, there is no concrete evidence, apart from the supposed fire of 1137, to suggest that the first church of St Mary's Abbey, begun in 1088 and completed about 1130, did not continue to serve the purpose for which it was designed until work on its replacement began in the year 1271.

24. *Epistola Turstini*, printed in *Memorials of the Abbey of St Mary of Fountains*, ed. J. R. Walbran (Surtees Society, vol. XLII for 1862) (1863), pp. 11–29, see esp. pp. 24–26.
25. J. H. Harvey, 'The fire of York in 1137', *Yorkshire Archaeological Journal*, vol. XLI.3, (1965), pp. 365–67.
26. I have discussed this fully elsewhere, (E. C. Norton, 'The York fire of 1137: conflagration or consecration?', *Northern History* vol. 34 (1998), pp. 194–204).

ARCHAEOLOGICAL SURVEY AT THE AUGUSTINIAN PRIORY OF GISBOROUGH, CLEVELAND

By S. A. Harrison and D. H. Heslop

SUMMARY

Excavation in 1985 and 1986 at the Augustinian Priory at Gisborough, Cleveland, (grid reference NZ 617 161) examined the nave and west end of the church of St Mary, and was reported in a previous issue of this journal (Heslop 1995, 51–126). The plan, dating span and much interesting detail of three successive churches was recovered and the available architectural evidence assembled to suggest the above-ground appearance of each building. This report covers survey and architectural analysis undertaken between 1986 and 1994, and completes the account of work funded by English Heritage as part of the renovation of the monument between those dates.

INTRODUCTION

In 1984, English Heritage (Properties in Care Section) requested the Cleveland County Archaeology Section to undertake excavation and survey in advance of remedial work at Gisborough Priory (Fig. 1). The East End was scaffolded and repaired in 1986–86 and the gatehouse and precinct wall repaired in 1993. Photogrammetric survey was undertaken in advance of repair by the English Heritage Photogrammetric Unit, and corrected by hand as part of the present project. The opportunity was taken to make the first large-scale survey of all the surviving medieval masonry in the Guardianship Area (the sixteenth-century dovecote is outside the designated area), and preliminary analysis undertaken by S. Harrison of the stone from the later (i.e. Post Romanesque) phases of the priory, which enable tentative reconstructions to be made of the thirteenth-century West End and the bay elevations of the presbytery. A geophysical survey, funded by Cleveland County Archaeology Unit, and undertaken by Andrew Waters, then of Bradford University, completes the work done in the inner precinct. No new documentary work was commissioned, but the authors have prefaced this account with a precis of secondary sources, for the benefit of those unfamiliar with the history of this early and important Augustinian House. The history of the church is detailed in the earlier account (Heslop 1995).

In keeping with present practice, the town and district are called Guisborough, while the priory, hall and hall estate are termed Gisborough.

HISTORICAL BACKGROUND

The general history of the Priory is well known through the work of Graces (1808, 421–26, Ord (1846, 164–201), Atkinson (1874, 26), Gilyard-Beer (1971) and Harrison and Dixon (1981, 11–93), while many of the important texts were compiled by Brown in the two volumes of the Gisborough Chartulary, (Brown ed. 1889 and Brown ed. 1891). To avoid re-covering the same ground, the historical background is given in the following digest; the Chartulary (G.C. I or II) is given as the primary reference where possible. For an account of what little is known of the later history of the muniments of the house, see Baker, 1988.

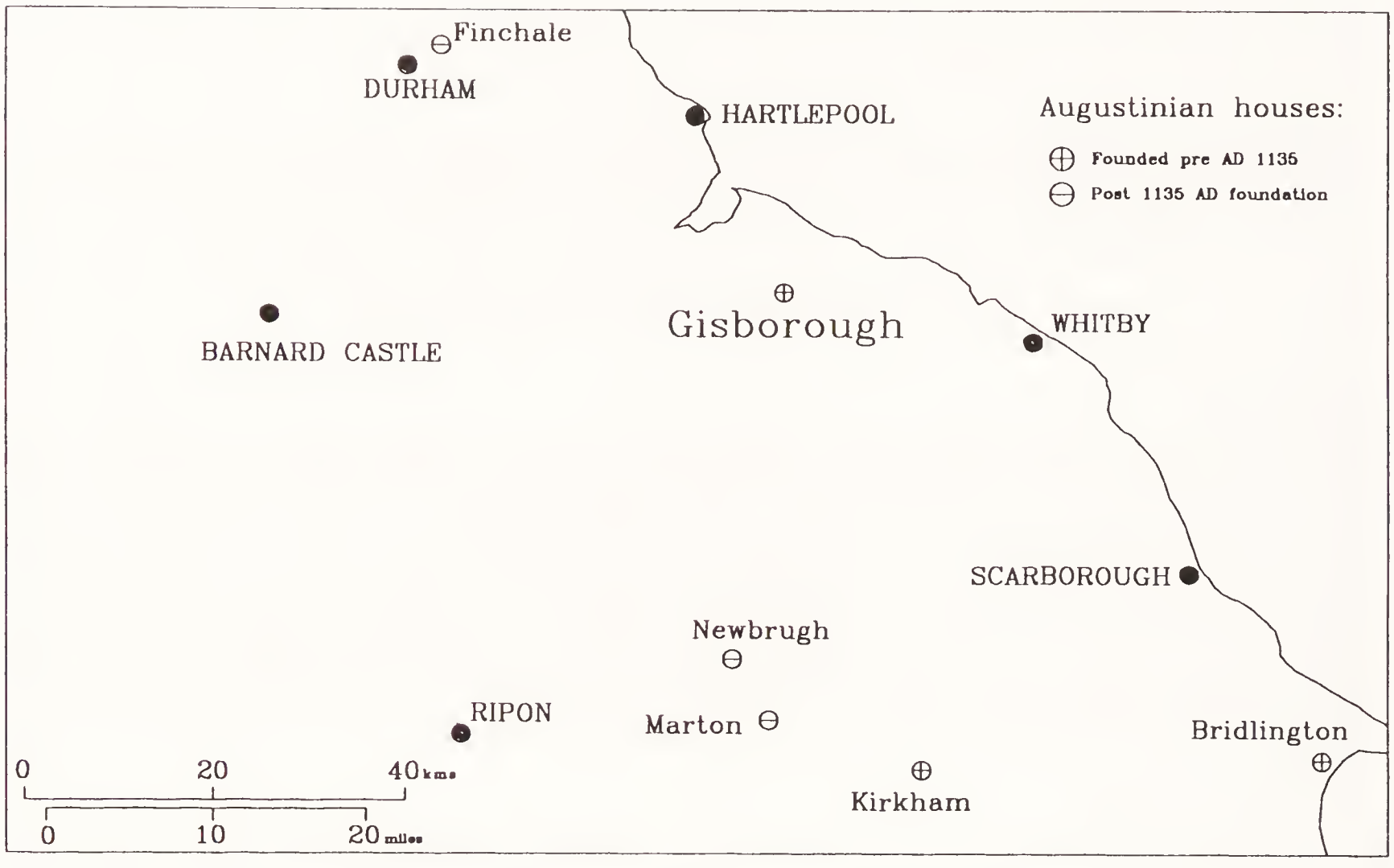


Fig. 1. Location map, showing sites mentioned in the text.

1119–1124 Foundation of Priory, dedicated to St Mary, during the Papacy of Callistus II by Robert de Brus of Skelton, on the advice of Archbishop Thurstan (G.C. I, viii; V.C.H. II, 352).

1129 Date of confirmatory deed, with additional donations, later taken as original instrument of foundation, as by Walter de Heminbrugh (G.C. I, ix).

1148 St Malachy spent his last days at the priory, curing a woman of cancer shortly before his death (Bernard's Life of St Malachy, chapter xxxi).

c. 1180 Henry de Pudsey founds a small monastery at Haswell, then Baxterwood, with canons from Gisborough but implacable opposition from the Prior of Durham forces Pudsey to transfer the benefaction to Finchale, send home the canons and re-stock with monks from Durham (Atkinson, 1874, II, 23–24).

c. 1180 Dispute between Adam (II) de Brus and the Convent over the advowson of churches at Kirklevington and Skelton. Adam lost (G.C. II, xi).

c. 1200 Hospital of St Lawrence established at Upsall, before being incorporated with a hospital of St Leonard at Hutton Lowcross. The almoner was custos until independence in 1275, when a master was appointed. Inmates taken of both sexes; healthy and leprous (G.C. I, 190).

1210 Gift of the advowson of Kirkleatham Church from William de Kilton sent for confirmation to King John (G.C. II, vii).

1221 Maud, niece and heiress of William de Kilton, claims that grant of Kirkleatham Church was extracted on his death-bed (G.C. II, vii).

1229 Prior admits validity of Maud's claim (G.C. I, viii).

1238 Prior Lawrence resigns chapel of Hartlepool to the Bishop of Durham (G.C. II, 358).

1263 Henry III grants the convent a market and fair at Guisborough (Ord 1846, 590).

1272 Peter de Brus IV dies; patronage of the priory passes to Walter de Fauconberg, by his wife Agnes, and Marmaduke de Thweng, by his wife Lucy (V.C.H. II 351).

1276 Goods, temporal and spiritual valued at 2000 marks (G.C. II, ix).

1280 Visitation of Archbishop Wickwane — much to correct; malingering in the farmery; scurrilous discourse in recreation time; muddled accounts. Judgement — no wandering from cloister; no individual gifts without superiors permission; *conversi* to be used where suitable; profiteering agents to be removed; punishments for named canon accused of quarrelling and cabals (G.C. II, x).

1287 Convent protests against the attempt of Canon Robert de Furmerey to transfer to a more austere order (G.C. II, 366).

1289 Church burns down (G.C. II, 353).

1290 Convent petitions the king for licence to impropriate the churches of Easington, Barmingham and Heslerton to relieve the poverty caused by the fire; not implemented (G.C. II, 354).

1292 Convent heavily in debt as result of Scottish wars (G.C. II, 355).

1302 Archbishop Corbridge of York gave indulgence to those visiting '*Capellam S. Hildae Virginis juxta Novam Aulam Prioratus de Giseburn construitur*' (G.C. II, 411).

1308 Visitation of Archbishop Greenfield — Two canons sent to Bridlington and Kirkham for penance (G.C. II, x).

1309 Archbishop Greenfield of York grants indulgences to all contributing to the rebuilding of the church 'devoured by fire' (G.C. II, 355).

1309 A canon of Bridlington sent to Gisborough for correction (G.C. II, x).

1311 Bishop Kellawe of Durham grants indulgences to all contributing to the rebuilding of the church (G.C. ii, 356).

1315 Commissions to be set up to correct excesses (G.C. II, xi).

1319 Convent refuses to admit an ex-Templar and is forced to under duress (G.C. II, XI).

1323 Archbishop Melton allows corrodies to be sold to alleviate debts (G.C. II, 398).

1327 A canon convicted of usury (G.C. II, x).

1328 The Convent is unable to contribute the tenth voted by the Northern Convention (V.C.H. II, 352).

1333 The Convent is allowed to sell a corrody and part of the library.

1343–44 Prior is Plaintiff in plea against bailiffs of Gisburn, Bernaldeby (a grange) and Skelton, to give account of moneys (YAS, RS, xviii, 77).

1344 Permission to crenellate granted (V.C.H. II, 352).

1380 Priory has prior, 25 canons and two conversi (Sub. Rolls P.R.O. Bale 63, 12).

1381 Will of William le Latimer, 4th Baron of Danby, orders completion of 'vaulting over the aisle in the north part of the church', and leaves a further 500 marks for a belfry (York Wills, Surtees Society, I, 1, 113).

1413 Fire in Guisborough consumes 49 houses: recorded among the obits in the Gisborough Liturgical Calendar (Wormald 1959, 5).

1433 Prior and Brother Richard Ayreton, canon, *vs* Mathew Rillesford of York, leech, for negligence of his professional duties in failing to cure an infirmity of Richard's left leg (YAS, RS, xvii, 78).

1535	In *Valor Ecclesiasticus* Gisborough work 628/6/8 nett, with one student at university.
1536	Drs Leigh and Leyton visit in January. Prior James Cockerill is forced to resign in February, with sizable pension, replaced by Robert Pursglove, Cromwell's nominee.
1537	In Bigod Rising, Sir John Bulmer, steward of the priory and Cockerill incite insurrection in Cleveland; both hanged at Tyburn.
1539	Pursglove signed deed of Surrender, on Christmas Eve, and is given pension of 166/13 (including Cockerill's manor of Ugthorpe) for his part in persuading other heads of religious houses in the area to accept the Dissolution (Harrison and Dixon 1981, 81).
1540	Henry VIII orders priory to be 'demolished and carried away' under lease to Thomas Leigh (Ord 1846, 575). Scheme by Pursglove to establish a college with dean, four prebendaries, six petty canons, four singing men, six choristers and master, steward, auditor and four poor men, came to nothing (G.C. I, 57).
1547	Buildings excluded from lease to Thomas Chaloner, diplomat and Clerk of the Privy Council, who married Leigh's widow (Harrison and Dixon 1981, 82).
1550	Remaining buildings included in Chaloner's purchase of priory estate (Ord 1846, 575).
c. 1600	Cottonian MSS gives a brief description of the priory, having a steeple and two guesthouses, formerly housing gentlemen pensioners. 500 householders lived off the priory, and the Prior 'kept a most pompous House' but 'now all those lodgings are gone, and the Countye as a wydowe remayneth mournfull' (Cottonian MSS Folio V, 453–62; printed in Graves 1808, 421–22).

PREVIOUS EXCAVATIONS

The first recorded excavation was in the summer of 1865, at the expense of Captain Thomas Chaloner. This involved the clearance of the East End to ground level. The only mention of this work was in an account of the annual Temperance Gala which was held in the Priory Gardens when, as the *Middlesbrough Weekly News* related:

> The fine remnant of the Old Priory was of course eagerly scanned, the excavations that have recently been made showing the form of the east end more clearly than it has been hitherto
> (Darnton and Dixon 1984, 4).

In September 1867, extensive investigations extended the clearance to the West End, under the supervision of Downing Bruce, the London antiquarian. Two newspaper accounts of this campaign survive in the form of letters from correspondents, for the *Building News*, 18th October 1867, and the *Middlesbrough News and Cleveland Advertiser*, 14th October 1867, both describing work in progress during the last two weeks of September. A starting date this late in the summer hints that part of this area was under horticulture.

The two accounts are broadly similar but by a different hand; the *Building News* correspondent concentrates on the historical background and the description of finds of antiquarian interest (heraldic tiles etc.) while the local newspaper concentrates on a description of the discovery of burials, but the salient points agree; they have been amalgamated in the following summary:

A north-south trench was laid out across the nave 200 ft (61 m) from the surviving east end. At the southern end of this, the eastern processional doorway was uncovered, having Early English Purbeck marble pillars (still exposed although without pillars). The adjacent south aisle had an area of tiled floor.

At 170 ft (52 m) from the east end, a portion of collapsed central tower had spilled into the choir, lying as it had fallen, on top of three monumental slabs, each 6 ft long and 4 ft 5 ins wide. One had part of an inscription carved onto the north side, (... *Sit. Pax Eterna Tecum Victore Superna* ...) in lettering dating to around AD 1480. This overlay a stone coffin five feet beneath the surface, containing a skeleton accompanied by a bronze buckle, sandals, fragments of fine cloth, assumed to be from vestments, and traces of a possible shroud. An adjoining grave contained a skeleton of 6 ft 4–8 ins length and two circular buckles of possible fourteenth-century date. The third slab bore the studs of a missing brass plate and overlay a further burial. All slabs and stone coffins were very badly broken; they were carefully re-placed and fixed in position with cement.

Towards the north-east of the crossing, and in the choir, large quantities of screen work, monumental debris and fragments of tabernacle were recovered, some in 'Caen white stone', much of it richly painted gold and red. There was an area of tile pavement in the choir, bounded on the west by steps down to the crossing.

At the time of writing, work was progressing eastwards towards the High Altar and more burials awaited excavation. At the east end, there was no recognisable flooring; undisturbed remains were encountered three feet beneath the covering 'sward'.

Three interesting sculptured finds were described; the remains of a figure in chain mail, a second in plate armour bearing the arms of Latimer on its breast, and an arch spandrel, in 'Caen White Stone' depicting an angel drawing a man out of fire with a chain.

Large quantities of pottery, glass, architectural fragments, including gold painted roof bosses, and many coins were also found.

The supervisor of this work, called Downing Bruce in the *Building News*, is almost certainly the William D. Bruce who contributed an engraved restoration drawing to Ord's *History and Antiquities of Cleveland* published some 22 or 23 years earlier (Ord 1846, 164). This view, taken from the east, gives the church a central spire clearly copied from Salisbury cathedral. The respected local historian Rev. J. C. Atkinson regretted that little could be deduced from this excavation, unlike contemporary work at Fountains ('It is to be lamented that the work commenced under Mr Bruce has not been fully carried out under the direction of some competent architect and antiquarian' footnote in his unfinished *History of Cleveland*, 1874, 13.)

The first four bays of the nave were consolidated at a lower level than the rest of the church. The latest surviving floor, dating to the fourteenth century, was exposed but then grassed over.

In 1887, fabric belonging to the priory was uncovered in the vicinity of the Grammar School, which lies to the north of the parish church. A letter from the headmaster, A. J. Cook to his mother states, 'the grammar school I am building is on the site of part of the old priory and on digging our foundations we came on the place where the Abbey workmen dressed their stone and burnt their lime' (extract of letter in EH file, Hilton Higginbottom, *pers. comm.*).

Although local tradition tells of further excavation during the 1930s, no evidence of an organised campaign has come to light and none was known to Gilyard-Beer (Gilyard-Beer 1954). However, during stone repair work in 1932–33, a narrow-gauge railway was

built to carry the wooden scaffolding from the gateway to the east wall, cutting across the north cloister walk, the south transept and the line of the south wall of the nave. The construction of this produced various finds including two grave slabs depicting knights-in-armour, which were re-buried (B. Wynn, Priory Custodian, *pers. comm.*).

The Ministry of Works resumed clearance in 1947, exposing the west range, outer parlour and part of the north cloister wall (Fig. 2). This work was complete by 1954, when R. Gilyard-Beer, who supervised at least the later stages, described the results in his note-book (Gilyard-Beer 1954, 59). A description of the surviving remains appeared in Gilyard-Beer's Gisborough Priory Handbook (1971), but the results of this excavation have not been published elsewhere.

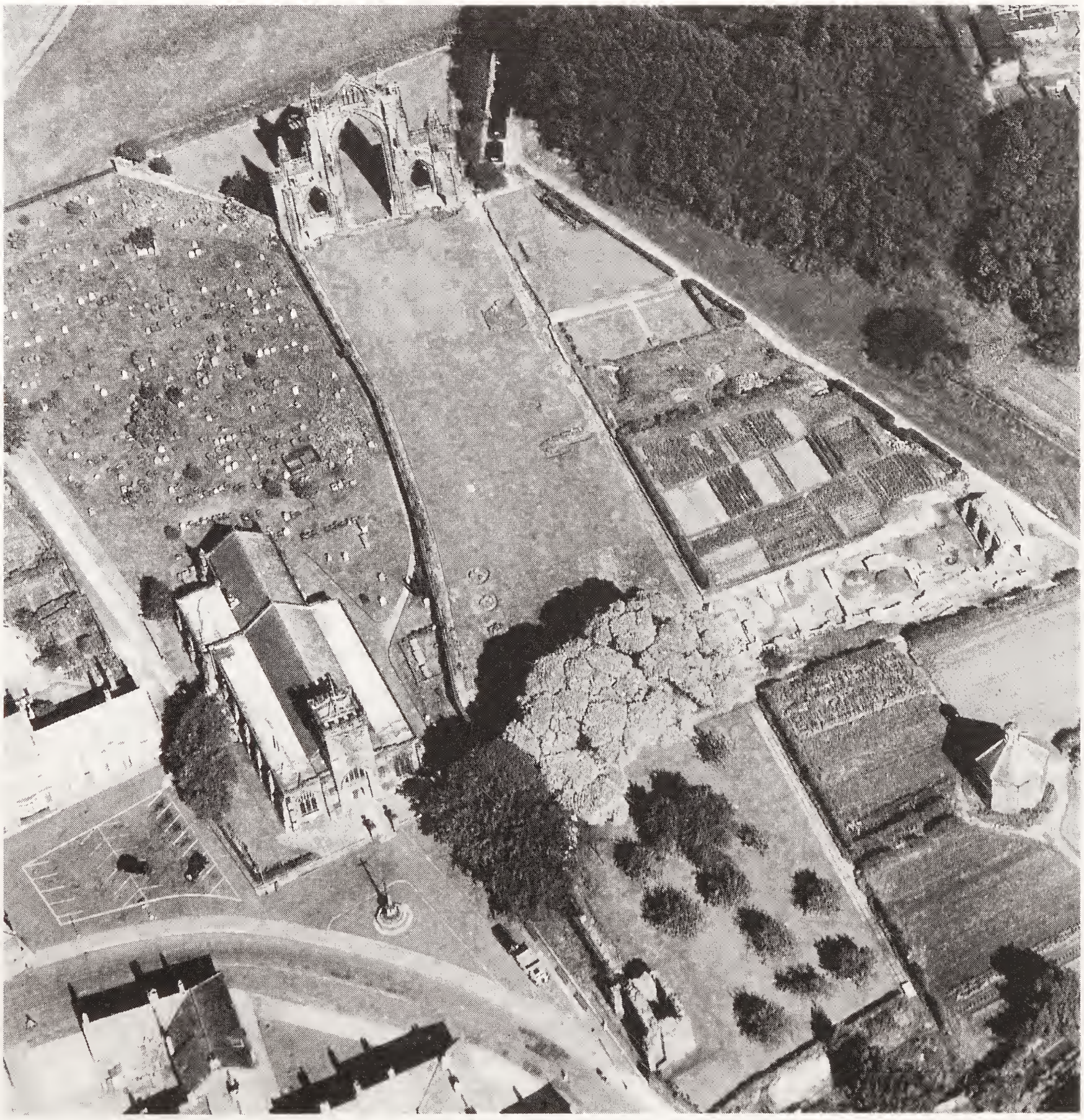


Fig. 2. Gisborough Priory from the air, *c.* 1954, showing Gilyard-Beer's excavations on the West range. Courtesy of Cambridge University, Collection of Air Photographs.

SURVEY OF UPSTANDING MASONRY

The last major fabric repair programme to the East End was completed in the mid-1930s. After a 50-year interval, a major programme of fabric maintenance, repointing and occasional stone replacement was preceded by elevation recording at 1 : 50 by photogrammetry (1985) by the English Heritage Photogrammetric Unit. The erection of 14 stages of scaffolding permitted close inspection to validate and correct the photogrammetric plots, work undertaken by the Cleveland County Archaeology Unit in 1986, when the north and south elevations were added, hand drawn from the scaffolding. Moulding profiles at 1 : 10 were taken during this phase of the project, and an accurate ground plan of the East End was produced. English Heritage supplemented the drawn survey with close-up photographic coverage to record sculptural detail and buttress faces not visible on the elevations (1986).

A programme of recording the surviving *in situ* masonry elsewhere on the Guardianship site was started in 1986 and completed in 1987. This covered the west range (plan), the so-called kitchen range (plan and elevation), the extant precinct wall, i.e. between the gatehouse and the west end of the church (plan and elevation), and the gatehouse (plan). The elevation drawing of the gatehouse was completed in 1993–94 with photogrammetry and subsequent site checking for the main elevations and hand drawing of the internal faces.

ANALYSIS OF UNPROVENANCED STONEWORK

Architectural analysis in 1994 continued work done in 1986 which covered the loose Romanesque and Early Gothic stonework in addition to the fragments discovered during excavation (Harrison 1995, 80). It examines the considerable quantities of stonework collected together in a stone pile presently located to the south-east of the priory church and describes in some detail the standing fabric of the church. Wherever possible, reconstructions have been produced to expand our understanding of the buildings and their development.

All the material is without provenance but undoubtedly has its origin mainly in the excavation of the church undertaken in the nineteenth century and the western range in the early 1950s. A large proportion of the stonework is of thirteenth-century date and features profiles and decoration typical of that period. The monastery was largely burnt in a fire in 1289 and subsequently rebuilt. Romanesque and Early Gothic material identified in the earlier report shows that substantial structures must have survived the fire and the thirteenth-century material provides another example of this survival. Following the dissolution of the priory in 1538, the buildings were stripped of all their fittings and roofs and the site was first leased and then soon sold. A substantial house was built in the south-west corner of the site, by the new owners, and this presumably accounted for a large proportion from the demolished priory buildings. Robbing of stone from the priory church was particularly extensive and, before the excavations undertaken by Admiral Chaloner in 1867, it seems unlikely that any details of its plan could be discerned.

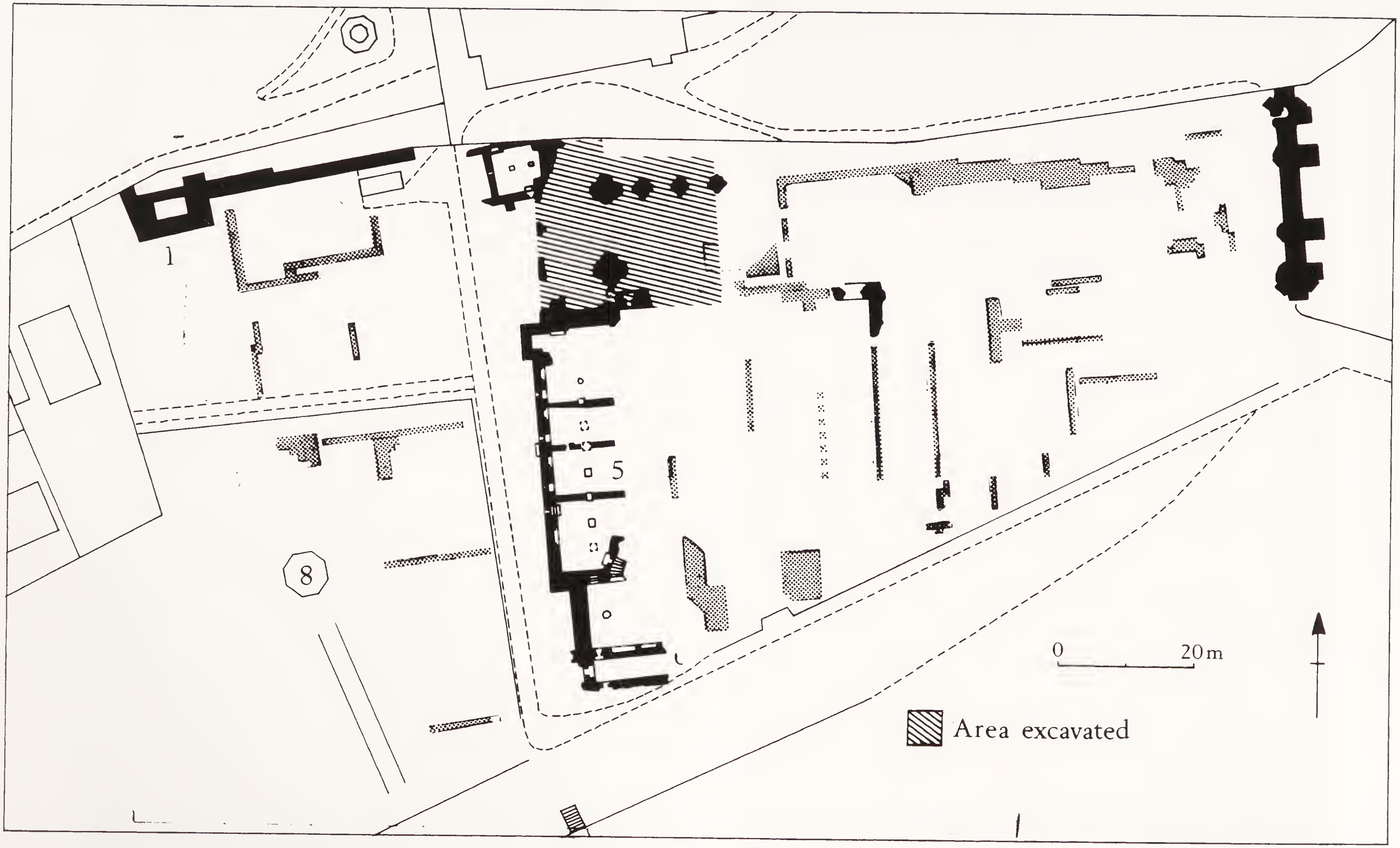
The scant remains of the church show that the thirteenth-century west front was retained after the fire. The surviving pier bases from the nave north arcade show that this area of the church must have been fairly deeply buried before the excavations and this area is the most likely source of much of the pre-fire thirteenth-century material.

GEOPHYSICAL SURVEY

A survey of the Guardianship area and that part of the market garden to the west of the Guardianship boundary, up to the sixteenth-century dovecote (Fig. 3), was carried out

3A

Fig. 3 (above and facing). Gisborough Priory, geophysical survey.



3B

by Andrew Waters of Bradford University Department of Archaeological Sciences, using a Bradphys Mk IV earth resistance meter loaned from Bradford University. A twin probe configuration was used with a 0.5 m probe separation across 20 × 20 m grids with readings taken at one metre intervals.

The ground conditions were generally good. Ground cover was short grass in the Guardianship area and recently rotovated soil in the market garden around the dovecote. Difficulties were experienced because of the inclement weather and the presence of landscape features across the area, making the laying out of large grids impossible.

A large range of resistance values were recorded in each area and the probes frequently encountered stone obstacles — masonry and rubble — during survey. The results were processed at Bradford University using an Epson HX-20 microcomputer with a geophysical data FIELD COMPUTER SYSTEM. Due to time delays during survey (weather and access restrictions) complete normalising of grids could not be achieved, and the grids have been processed individually and the visible differences between grids have not been disguised. The resultant dot density plans (Fig. 3 — darkest areas have highest resistance), show that these factors have not seriously impaired the results of the survey. Observation on the survey have been integrated with the relevant section in the discussion.

DISCUSSION

THE ROSE WINDOW

Included in the thirteenth-century material are three sections of plate tracery from a rose window of considerable dimensions. Two of the pieces are very similar, forming a basically triangular shaped panel which has the springing for half a trefoiled arch on each side. These are moulded on the exterior with single decorative flowers with long stems spaced at regular intervals (Fig. 4). The spandrel is filled with a circular paterae panel decorated with foliate motifs, below which is a small hole pierced through the stone. Internally there is a substantial rebate for glazing frames and the spandrel also features a decorative paterae panel (Fig. 5). Noticeably, all the paterae panels have different decorative motifs indicating that there was considerable variation throughout the window. Because the tracery formed part of a rose window, the arch apex joints have a radial angle generated from the centre of the window. This enables an accurate reconstruction of each ring of tracery to be made (Fig. 6) and in the first case it is possible to show that there was a ring of 12 trefoiled arches, 3.4 m in diameter. The second piece of tracery is of slightly different proportions and the radial joints are at a different angle which shows that it formed part of a ring of tracery with 36 trefoiled arches 8.15 m in diameter; the third piece of tracery is part of a spoke or shaft which supported the arches (Fig. 7). Though badly damaged, it clearly has a moulded capital and part of a semi-octagonal shaft which is rebated at the rear for glazing panels. The back of the shaft has a hole for retaining the glazing panels and the rebate curves behind the capital.

The basic arrangement of the window must have had some form of large sexfoil at the centre which supported a ring of 12 spokes in the form of small shafts which had moulded capitals and bases. These supported a ring of 12 trefoiled arches. Around this ring there must have been a second with 24 arches which were probably trefoiled but may have been simply pointed. These in turn supported the outer ring of 36 trefoiled arches which were probably set in a heavily moulded rim. The details of this window are similar to other rose windows from the region and the nearest comparison is the window in the gable of the south transept at York Minster (Harrison and Barker 1987, 145, Fig. 7). That window has a central sexfoil and two rings of 12 and 24 moulded trefoiled arches. The supporting shafts are very similar but with the additional decoration

Fig. 4. Section of rose window from outer ring of 36 arches, exterior face.

Fig. 5. Rose window, interior view of Fig. 4, showing decorative paterae in spandrel and the plain outlines of the deep glazing rebates.

of stiff leaf instead of simply moulded capitals. The details of the arches are alike and use large springers with a similar arrangement of joints. Gisborough has prominent glazing rebates but in comparison those at York are relatively shallow. York also provides another example where the internal face is decorated, though in this instance with a simple arrangement of plain sunk circles (*op. cit.* 146, Fig. 8).

Contrary to popular belief, rose windows were very common throughout the twelfth and thirteenth centuries in the North of England, particularly in Yorkshire, but destruction at the Dissolution of the monasteries and earlier modernisation schemes have meant a low survival rate. In recent years tracery has been recognised and reconstructed from

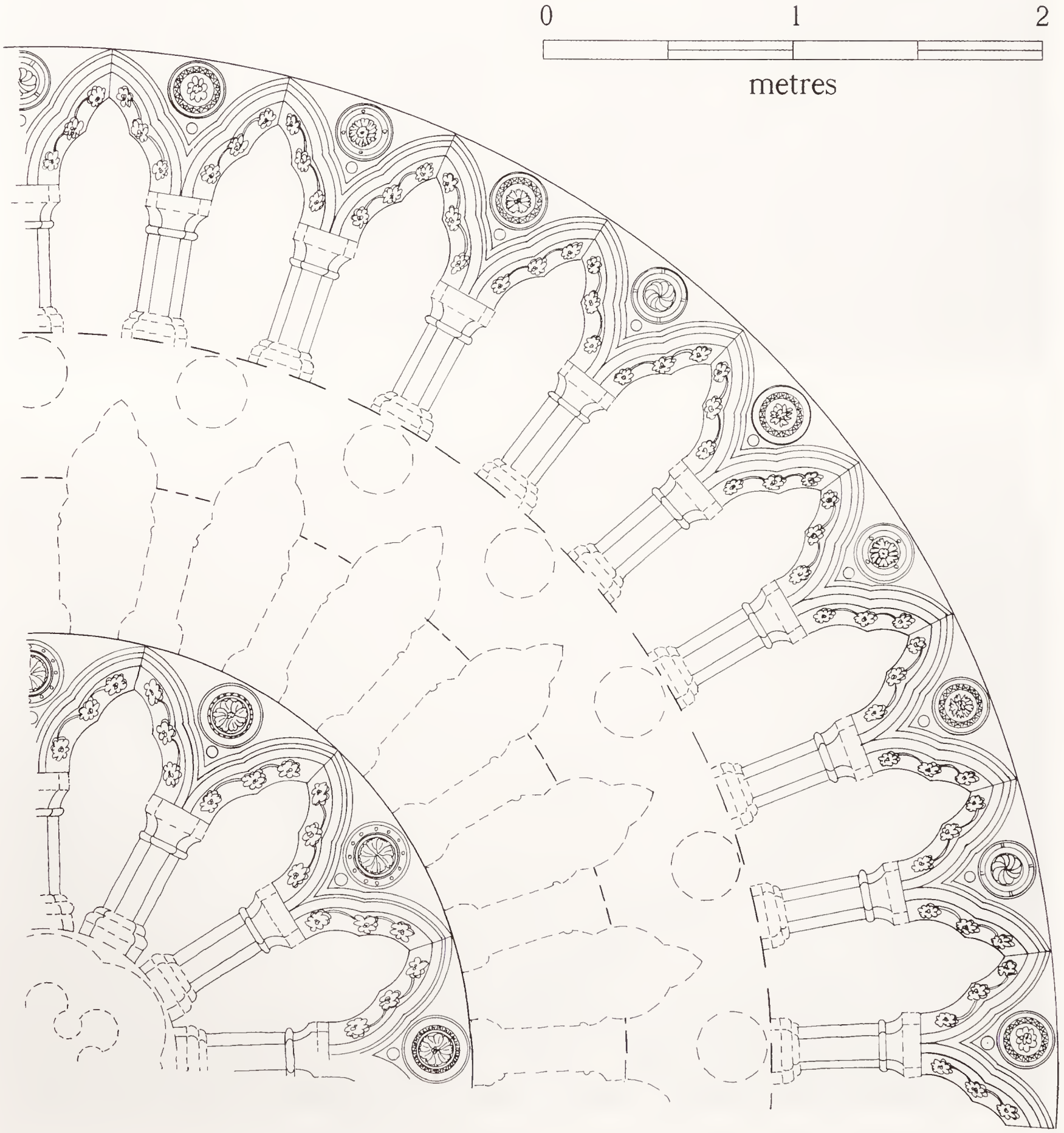


Fig. 6. Reconstruction of the great rose window.

two large windows at Fountains Abbey (*op. cit.* 148, Coppack 1993, 41, Fig. 25 and p. 58, Fig. 43) the western rose at Byland Abbey (Harrison and Barker 1987), the eastern rose at Kirkstall (Harrison, 1995) and parts of two examples from Jervaulx Abbey, with the possibility of parts of another two from Roche Abbey and one from Rievaulx Abbey. In addition, it seems likely that Beverley Minster originally had an eastern rose window and, in an Augustinian context, certain that Kirkham Priory formerly possessed a large rose in the upper part of its lost eastern facade (Harrison and Barker 1987, 146–49, Coppack *et al.* 1995, 72–75). Outside the Yorkshire region a large rose window has been reconstructed at Elgin Cathedral (Fawcett 1997, 34–36) and the stonework collection at Norton Priory (Cheshire) also includes part of a rose window. No doubt there were originally many others which have been completely lost. Virtually all the examples mentioned above had rings of 12 or 24 arches and usually, apart from glazing rebates, are entirely plain on the interior. The Gisborough window is unusual in several respects; firstly, the elaborate decoration of the exterior with paterae in the spandrels and foliate decoration along the trefoil arches. Secondly, there is the internal spandrel decoration with equally elaborate paterae panels to the exterior. Thirdly, the additional outer ring of 36 arches and the great size this gives the window. It seems clear that the Gisborough canons intended to have the most heavily decorated and impressive rose window in the North, if not in the whole of England and its loss is all the more to be regretted.

THE WEST FRONT

Such an impressive window, which by its internal rim must have been nearly nine metres in diameter, can only have occupied one of the major facades of the church. It seems unlikely that such a window would have occupied either of the transept terminal walls and since the eastern facade was rebuilt in the late thirteenth century, it seems most likely that the window formed the principal feature of the western facade. Indeed it

Fig. 7. Damaged column or spoke support from the rose window showing the rebates for glazing.

appears that only the nave would have been wide enough to accommodate its large diameter. This would accord with the known history of the building following the fire of 1289 and account for the survival of the tracery fragments.

The west front of the church has been reduced to a low level but its plan remains largely intact (Fig. 8), together with much of its base plinth. These show that the front had a pair of large western towers which projected beyond the nave aisles at the sides. It has a steeply sloping deep base plinth with angle shafts with fillets worked up the side angles of the wide pilaster buttresses, which were chamfered across the corners. The wide western doorway was subdivided in two and the base padstone for the dividing pier still survives. This shows that the outer plane of the doorways were placed in line with the face of the flanking buttresses and it is notable that the padstone is set into what appears to be the lowest section of a flight of steps, spanning between the buttresses. Internally, the large north and south piers of the first bay of the nave have survived relatively intact. Because these carried the tower they are very large and of quatrefoil plan (Figs. 8 and 9). The piers have a square core around which are arranged each semi-circular base which makes up the overall quatrefoil base plan. The sub-base has a simple drum base with a torus moulding along its upper edge and supports individual moulded bases to the shafts of the pier. The northern base retains substantial sections of the moulded bases but the southern pier has only the lower sub-base, though loose moulded base sections amongst the stonework collection almost certainly belong to this pier. The piers formed a respond for the nave arcade and for the arch into the tower basement. There was a respond for a large arch spanning across the nave which marked off the western towers from the rest of the nave and on the aisle side this is matched by an aisle respond. Against the aisle wall there was a matching semi-circular respond though these have been largely robbed away. Because of the deep projection of these bases and the relatively narrow nave aisles, the gap between the pier responds is very small and the resulting arch, spanning the aisle, must have looked extremely unusual and attenuated.

The piers are composed of large shafts with prominent fillets with a shaft facing towards each cardinal point and another diagonally in the angles between. The fillets are repeated in an exaggerated manner on the base neckings and partly into the base moulding below but not on the front of the large lower base roll. The base mouldings are waterholding and though large-scale are typical of the first half of the thirteenth century (Fig. 10). Despite the treatment of each face of the pier as a separate respond the side shafts are not adapted to specially fit against the pier core. Whilst responds are often specially designed, in this case it suggests that the respond plan may have been adapted from the free-standing piers used in the thirteenth-century nave arcade. Projection of the respond pier plan to full circle shows what such a pier may have looked like (Fig. 11). The individual pier shafts are separated by rounded hollows which are wider than the gap between each of the pier shafts. This must have given a curious appearance to each pier, emphasising the space between each shaft with a deeper line of shadow, and is an unusual feature which was also used on the crossing piers at Whitby Abbey. In the south-east corner of the south tower is the lower jamb of an entrance into a stair turret for access to the upper parts of the tower and the lowest section of the newel with a moulded base still survives. In the internal corners of the tower are the remains of large corner shafts.

In the first report, (Harrison 1995, Fig. 27) a trefoil-headed niche with a gabled canopy was illustrated and this was part of a series forming a wall arcade, of which several pieces survive. The gable above the niche projects from a sloping glacis which shows signs of weathering indicating the arcade was positioned outside the building, presumably somewhere on the west front such as between the tower buttresses. Architectural drawings inscribed on the pavement adjoining the tower piers appear to show the layout for one

of these niches and also for the central division between a pair of lancet windows (*op. cit.* Fig. 8). This has the outline of a cluster of five shafts, the central and outer of detached design whilst the intermediate pair have a roll moulding with a prominent fillet. At each side is the outline of a chamfered window jamb with a glazing rebate. No complete piece of stonework of this design has survived but one piece of fragmentary form has been recognised amongst the stone collection. The drawing must have served to facilitate the production of templates for stone cutting and may represent a plan for a base, annulet ring clusters, or capital. The location of these drawings indicates that they relate to the construction of the west front and if this can be accepted as correct it suggests that the design of the front incorporated paired or groups of lancet windows which were separated by clusters of five shafts.

In the northern region large twin-towered facades were not that common, there being only Durham and Selby from the Romanesque period and Old Malton Priory surviving from the late twelfth century. Like rose windows, though, such facades may have once been more common and, whilst such sites as Whitby and St Mary's York await excavation, York Minster certainly appears to have had a twin-towered facade added to its Romanesque nave, late in the twelfth century (Hope-Taylor 1971, 20–21, Plate 6; Gee 1977, 125–26). Though this was destroyed when the present west front was built, a series of statues from the earlier building still survive (Norton and Oosterwijk 1990). Similar, but more fragmentary statues by the same atelier survive at Gisborough and these may have occupied the trefoil-headed niches on the west front (Oosterwijk 1993, 41–44). The nearest contemporary twin-towered facade to that at Gisborough is the west front of Ripon Cathedral (Hallet 1909, 40–44; Forster *et al.* 1993, 121, Plate 1). The Ripon west front, like that at York, was added to an existing aisleless nave so that the towers projected completely beyond the nave and effectively disguised what was going on behind. At Gisborough the west front is also wider than the nave but this is more likely to reflect the desire to have towers which were square internally. Had the towers followed the plan of the aisles, they would have been distinctly rectangular in plan.

The Ripon front has similar, but shallower, buttresses which rise the full height of the towers. There are three doorways grouped together which project forward from the main line of the west front and are deeply moulded with gables framing each arch. These project from a large sloping glacis in a similar manner to the trefoiled niches from Gisborough. The lancet windows are framed by groups of shafts separated by dogtooth moulding in a very similar manner to that indicated by the Gisborough window setting out. The lowest stage of the towers has a row of trefoiled blind arcading and three stages each with a single lancet window flanked by lower blind arches. In the central part of the facade there are two tiers of five lancets, the upper graduated towards the gable which has a third tier of three narrow lancet lights. Gisborough must have been very similar but with the rose window as the principal feature of the front. From the plan of the front it is possible to project a tentative outline reconstruction of the design. The surviving east gable gives an indication of the height of the building and though it may have differed slightly from the nave, it would be unusual to have varied by a great amount. The rose window would have been placed high up in the facade and internally it would have occupied the whole width of the nave. Just how its position was related to the nave ceiling cannot be established but other arrangements in the region such as Byland, York and possibly Kirkham placed the rose window very high in combination with a timber barrel ceiling (Harrison and Barker 1987).

Externally the window setting would almost certainly have been enhanced by large paterae panels set around the window rim (*op. cit.*) and several examples of such decorative panels have survived in the stone collection.

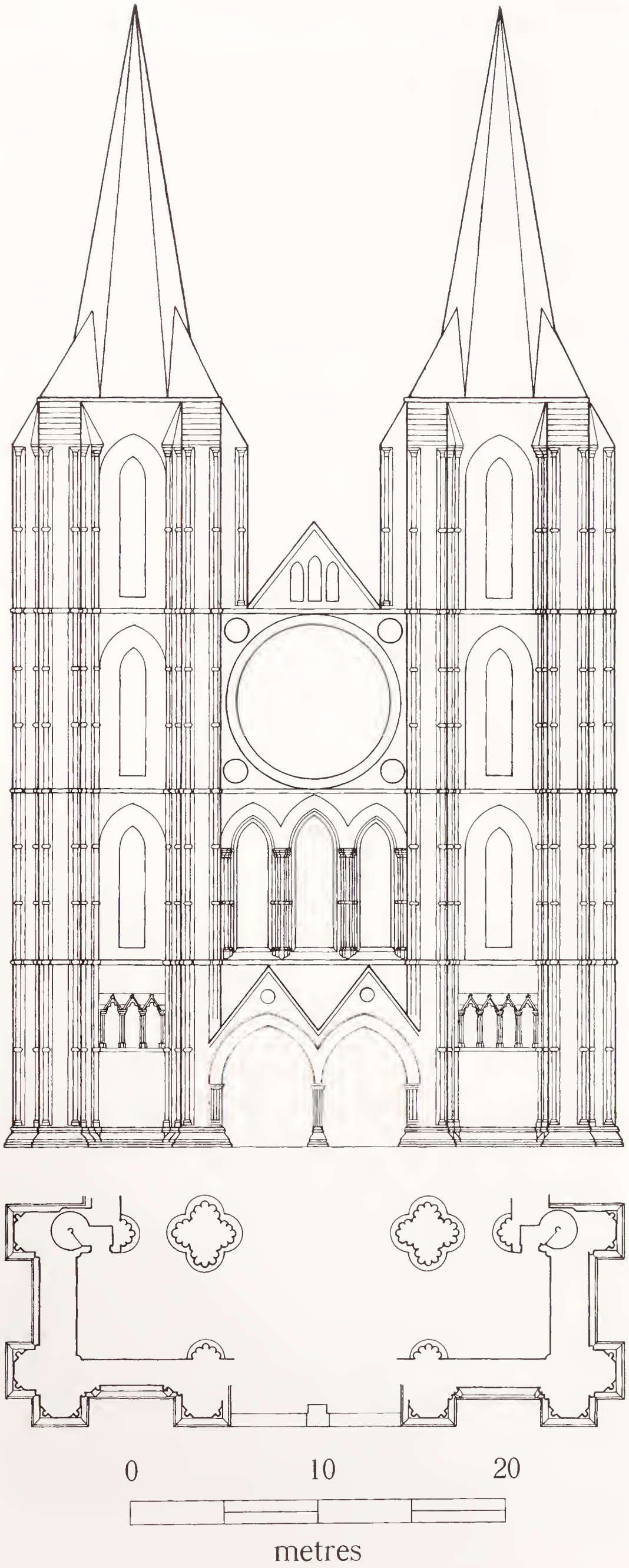


Fig. 8. Tentative schematic reconstruction of the west front.

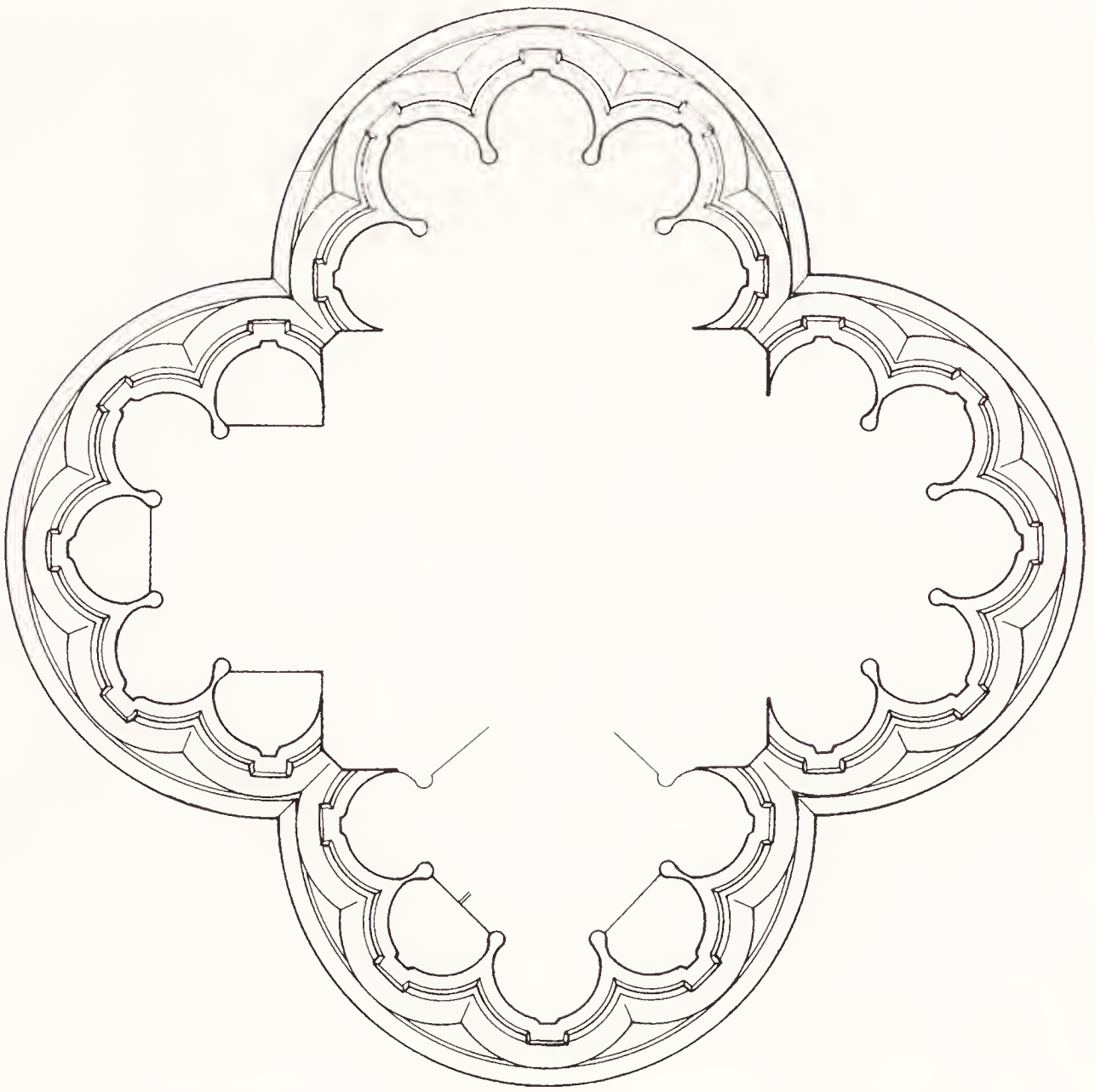


Fig. 9. Detailed plan of western tower pier (Scale, 1 : 40).

The buttresses are wide and were embellished by angle shafts, similar to the east front at Kirkham Priory (Coppack 1990, 51, Fig. 58). The surviving bases show that these were detached and must have been banded at regular intervals with annulet rings or moulded collars. Presumably, like other surviving examples, they extended to the top of each tower. Between the buttresses there were additional shafts which considerably reduced the space available for windows. These shafts may also have risen the full height of the towers but at Selby Abbey similar shafts are employed to support arches in the upper stages. These additional shafts are treated differently on each tower and if the gabled trefoiled niches were positioned between them there would be space for four niches on the south tower but only three on the north tower. The relatively narrow space available for windows indicates that these would have probably been single lancets perhaps, like those at Ripon, flanked by lower blind lancet arches. Certainly it seems that the double window jamb, drawn on the paving, cannot have been employed on either tower because it is too wide. It seems likely that it represents the design for the windows positioned below the rose window and using the drawing as a guide it is possible to accommodate three lancets in this position.

How the upper parts of the tower were finished is problematical and simple sloping buttresses have been indicated in the drawing but these could equally have carried up as pinnacles or had gabled cappings. The towers may have been roofed with shallow leads but, following the pattern of Ripon and other examples, tall lead spires have been indicated to show the possible outline. The setting of the doorway in line with the face

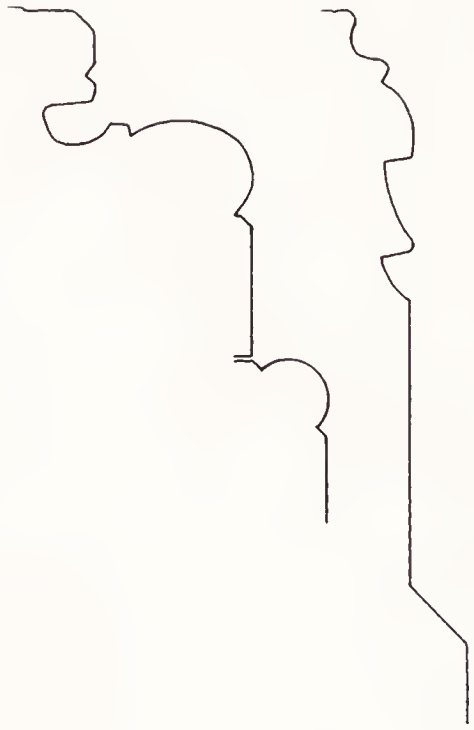


Fig. 10. Mouldings of thirteenth-century western tower piers and fifteenth-century nave pier bases (Scale, 1 : 8).

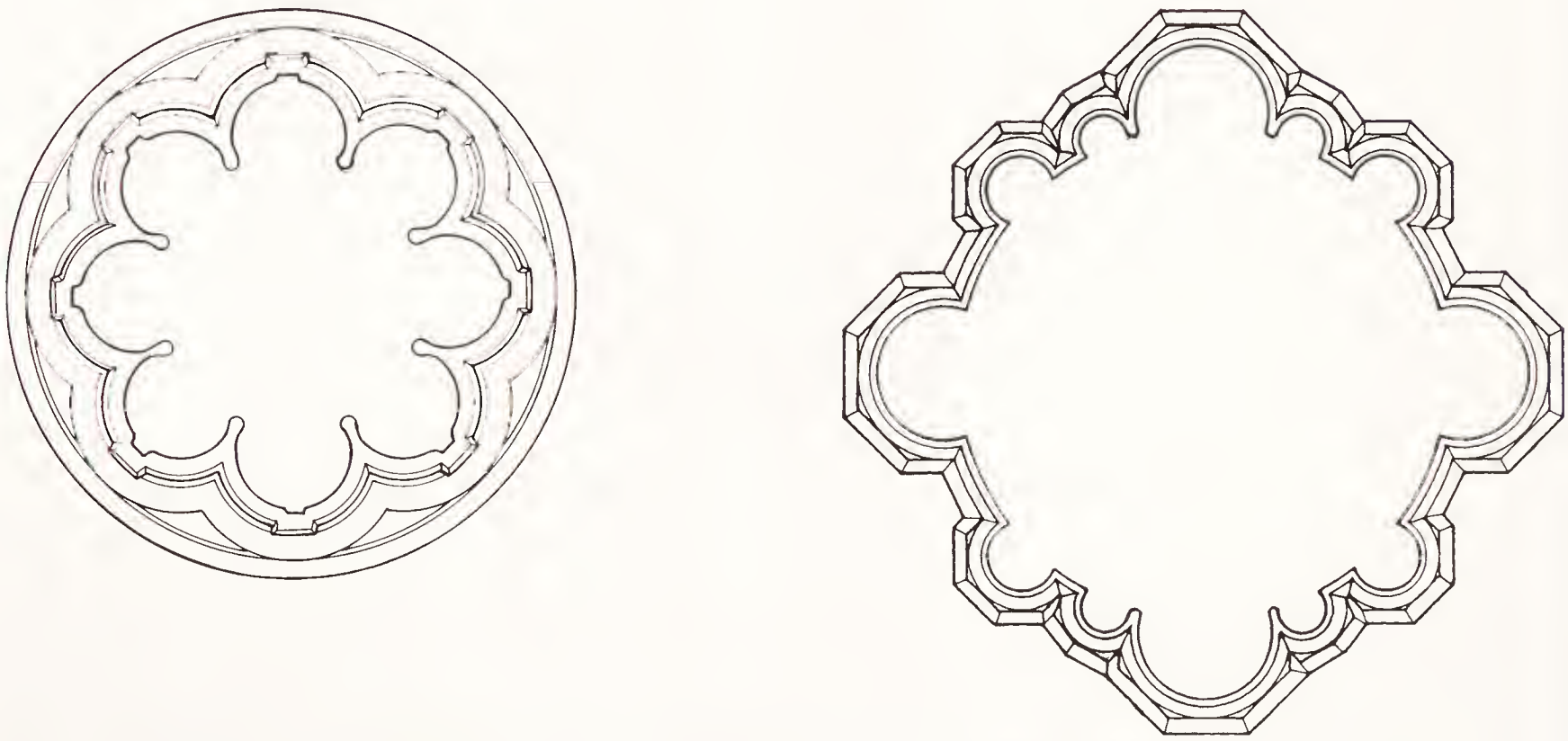


Fig. 11. Nave pier plan: left conjectural thirteenth-century pier, right fifteenth century pier. (Scale, 1 : 40).

of the flanking buttresses is unusual and indicates that the doorway was deeply recessed. The paired arches must have spanned between the buttresses and because of the depth of the doorways have been surmounted by gables set into a sloping glacis. This must have appeared very similar to the western doorways at Ripon (Hallet 1909, 17, 39) and several stones from a gable decorated with laurel-leaf foliage have survived in the dump (Fig. 12). The pitch of this gable was 52 degrees and this is a common roof pitch used during the twelfth and thirteenth centuries, occurring for instance on the roofs at Ripon. The small scale of the leaf decoration makes it unlikely that the Gisborough example originated from the high roofs and the gables over the entrance doorways seem to be the most likely source. Unfortunately, all the masonry east of the first step in front of the doorways has been robbed away and excavation yielded no further information concerning the actual arrangement of the doorways. It seems that the paired arches between the buttresses formed a deep porch in front of the actual doorways. These may have simply followed the outline of the porch arches and formed a pair of deeply moulded doorways or it may be that there was a single central entrance doorway forming a syncopated

arrangement with the paired arches of the porch. Whilst the latter may seem unusual, an earlier instance of syncopated arcading is known from the site (Harrison 1995, Fig. 27).

Considerable quantities of the thirteenth-century mouldings survive amongst the loose stonework and though it has not proved possible to examine all the material in great detail, some of the moulding profiles have been recorded to show the variety present (Fig. 13). These include many pieces which feature dogtooth and nailhead ornament, including a vault springer. Some of the arches appear to have formed part of a richly moulded wall arcade with dogtooth ornament and remains of this include handed springers, foiled springers, voussoirs with a variety of radii and several keystones. Despite the wealth of material, it is not obvious how they fitted together; certainly they cannot have formed a simple trefoiled arcade and the variety of radii indicate that there was a profusion of small arches mixed with some quite large ones. Some of the angled joints suggest that cinquefoil arches formed one of the principal features of the arcading. One of the voussoirs has a compound arc of curvature struck from two centres, and this may explain why it is not a simple task to reconstruct the appearance of the arcading. The double curve brings to mind the rather curious blind arches which flank the presbytery aisle windows at Fountains (Hope 1900, Fig. 6) and which also appear in the presbytery aisles at Carlisle Cathedral; perhaps something similar was used in the western towers at Gisborough. Certainly the contemporary twin-towered front at Arbroath Abbey featured a large rose window and the base of each tower has an external arcade of syncopated arches (Mackie and Cruden 1985, 15–16). The Gisborough arcading has a matching hoodmould with laurel leaf decoration and the two surviving label stops are carved with the head of a king and two intertwined biting dragons. The wealth of this material suggests that if it did originate in the towers it would most likely have formed part of internal decorative arcades, rather similar to those in the lower stages of the towers at Ripon.

Though badly damaged, the stubs of the nailhead of some of the voussoirs show that it was very attenuated (Fig. 13), a feature noted on some of the fragments found during the excavation of the nave and illustrated in the first report (Harrison 1995, Fig. 14, 6). The example of laurel leaf noted above can be supplemented by sections of stringcourse and a fragment of door jamb which has it worked up the angle. This motif forms yet another link with York Minster where it is used extensively in the transepts. More exotic are a pair of large bases which have drapery swags worked on them (Fig. 14), a rare type of decoration which also occurs, together with laurel leaves on the jambs, in an Augustinian context on the nave north porch doorway at Bridlington Priory. At Gisborough they appear to have occupied a corner situation but may have been combined with others in some form of door jamb assemblage.

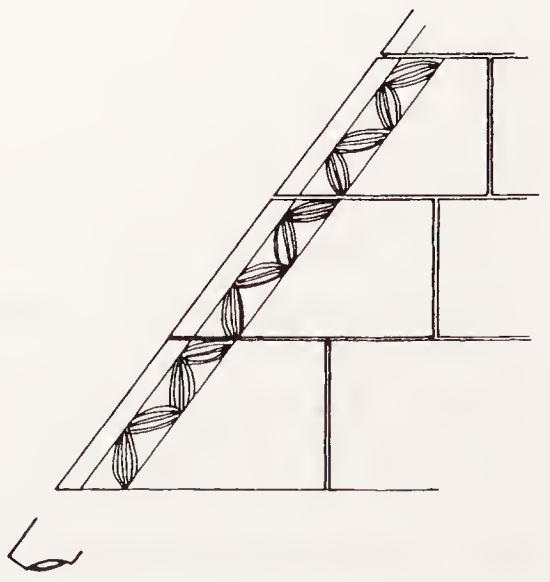


Fig. 12. Gable with frieze of small laurel leaf decoration (Scale, 1 : 10).

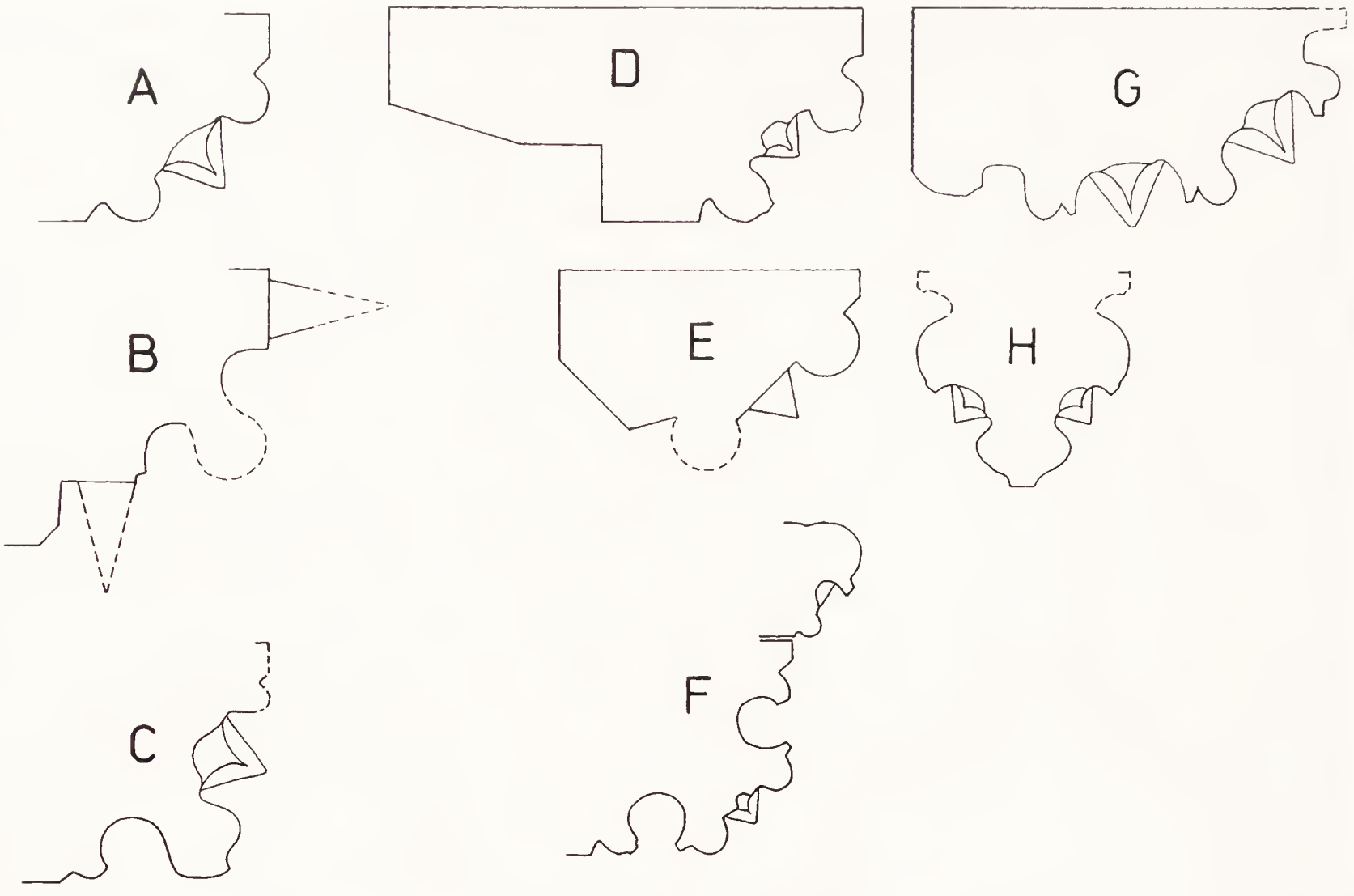


Fig. 13. Profiles of thirteenth-century date showing nailhead and dogtooth ornament (Scale, 1 : 10).

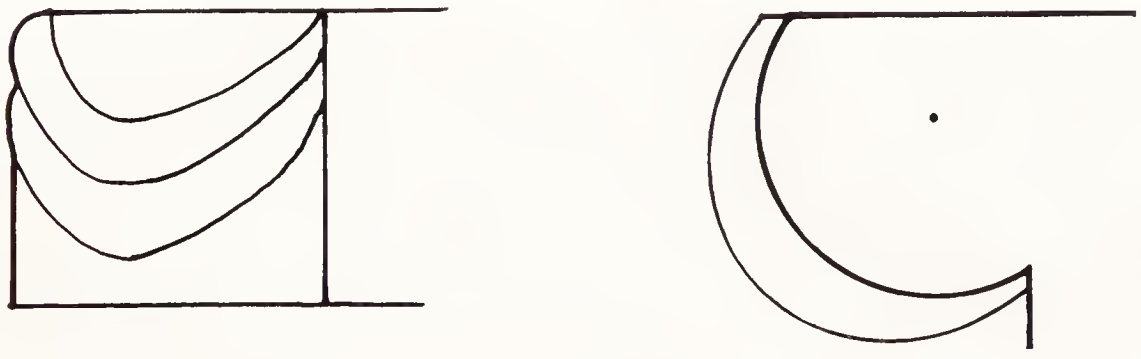


Fig. 14. Bases for round shafts decorated with stylised drapery swags (Scale, 1 : 10).

THE NAVE ARCADE

In the north arcade of the nave the three westernmost pier bases survive and they show a design of the late fourteenth and early fifteenth century (Fig. 11). This has a single large shaft on the east and west face with a large cluster of three shafts towards the aisle and nave. Between the two, but separately positioned is another shaft. The base profiles are tall and typical of the perpendicular style (Fig. 10). Amongst the stone collection are several pieces of shaft which must derive from this series of piers, including one unusual section which has part of a pier worked on one face and towards the pier core an intricate moulding of a window jamb, similar to those of the presbytery aisle windows. On each of the bed faces is a prominent masons' mark. The apparent reuse of this stone may indicate that material, in the style of the presbytery, was prepared but never used; probably due to an interruption in the progress of the work. The source of this pier type is not difficult to trace, for it was first used in the rebuilding of the nave at York Minster from 1290 and retained in use in the later fourteenth-century rebuilding of the Minster

presbytery (Harvey 1977). It was, therefore, still a current design when the nave at Gisborough was being rebuilt. At York the front shafts are carried up the elevation to form the supports for the high vault and we can assume that the Gisborough piers were similarly treated, indeed the adoption of this design all but proves the presence of some form of high vault in the nave. Though all trace of the arcades have now vanished, several voussoirs deriving from them survive in the stone collection and these can be used to give some indication of the profile of the arcades (Fig. 15). The apparent York influence may mean that the nave bay design, like that in the choir, followed the design of the York presbytery. Further research amongst the loose stonework might reveal much in this respect. Certainly there are fragments of window tracery which must derive from the nave windows. Whilst the mullions are simpler in profile than those from the presbytery (Fig. 16), the other surviving pieces show that the windows had transoms and these show the size of the lights and that the heads were cusped. Whilst the two surviving transoms employ the same profile, one is prominently embattled and the other plain.

Other details include parts of wall arcading which probably derive from the nave aisles. These have springers for blind tracery and are simpler than those employed in the presbytery. Parts of two different embattled parapets survive and, whilst one appears to have employed simple crenellations, the other was a splendid example with pierced cusped tracery openings and may have formed the clerestory parapet to the nave or perhaps a central tower (Fig. 17). It is strikingly similar to the parapets employed on York Minster.

THE EAST FRONT (Figs. 20–23)

The east front of the church forms the most intact part of the monastery and is a most remarkable survival considering the almost total demolition of the rest of the buildings (Fig. 18). By 1709 the only monastic building which remained intact appears to have

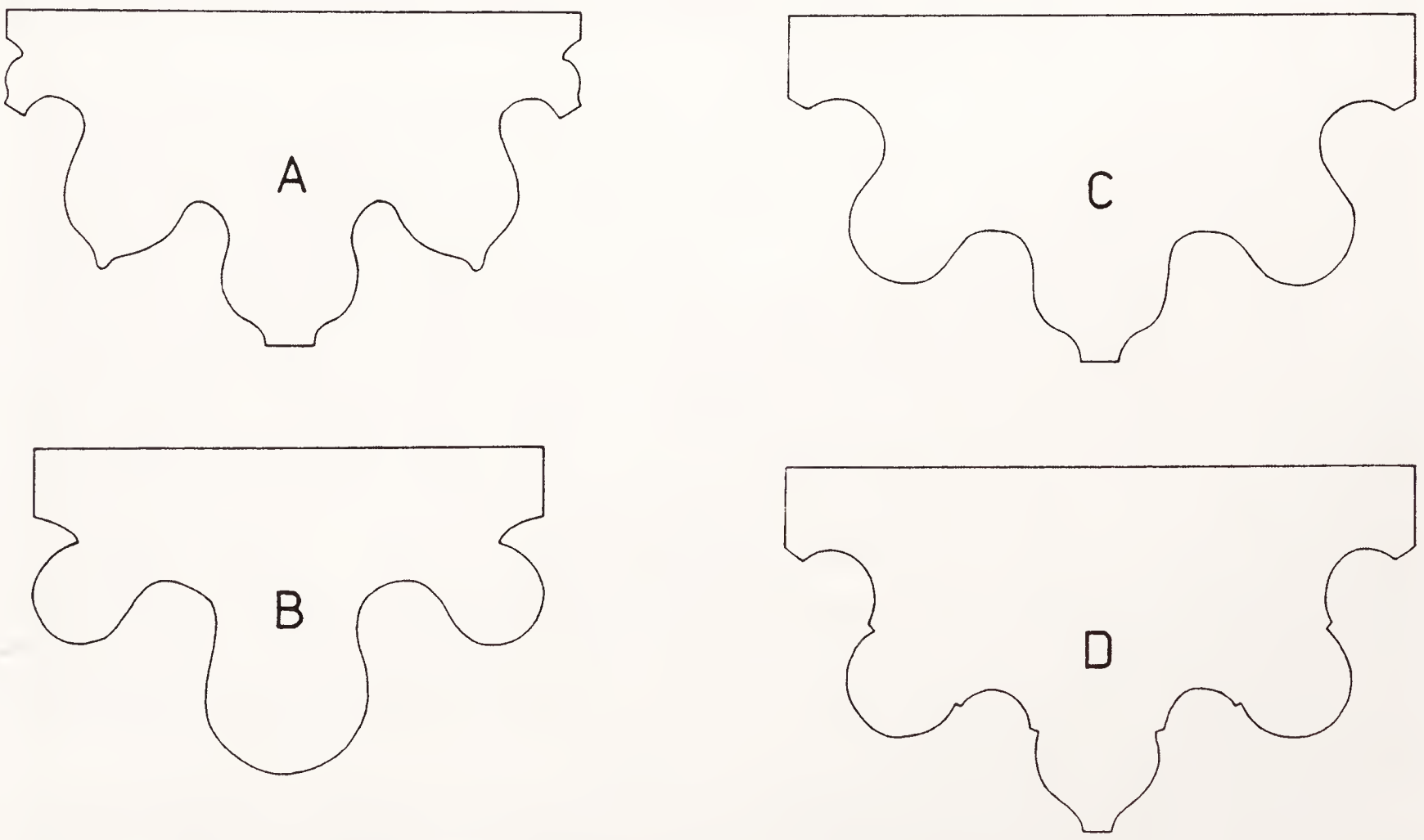


Fig. 15. Profiles of four large arch soffit voussoirs from the main arcades of the church (Scale, 1 : 10).

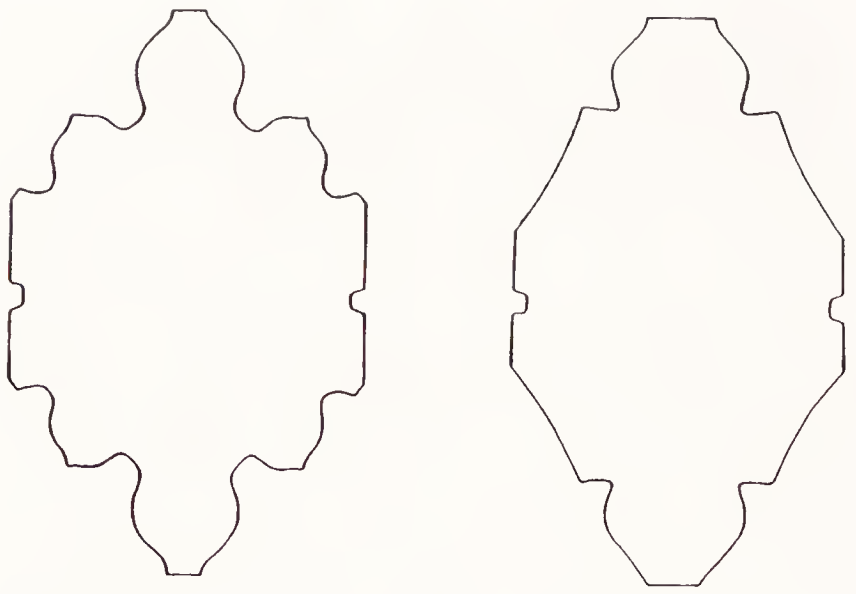


Fig. 16. Profiles of church window mullions: (a) rebuilt presbytery; (b) probably from the fifteenth-century nave (Scale, 1 : 10).

been the gatehouse, whilst the church had largely assumed its present appearance with the east front standing as an ornament within the park adjoining the formal gardens of the mansion built by the Chaloner family (Coppack 1993). The fire of 1289 damaged the buildings so badly that substantial rebuilding had to be undertaken (Brown II, 353–57). The east front of the church shows that this was soon in hand. Externally it has large deeply projecting buttress which have triangular cappings. The south-east corner has an additional minor buttress in the diagonals facing south-east and south-west. Above the tall plinth and plain base stage there is a statue niche with a gabled head which is decorated with foliate crockets. The major corner buttresses have geometrical panelled tracery supported by engaged moulded shafts with foliate capitals (Fig. 19). The tracery fills the gable at the top of each buttress and it carried around the sides in the form of trefoiled panels. Each of the large buttresses which flank the east window have a matching statue niche but the upper parts, which step back at intervals with sloping offsets, are plain masonry. The buttresses at the north-east corner are similar in form to those at the south-east but lack the decorative niches and tracery panelling. This gives some indication of the sequence of construction.

The east end of each aisle has a window with geometrical tracery, formerly of three lights. The tracery has been knocked out but the stubs in the window head show that it had a trefoil in the head with a pair of quatrefoils below. The trefoil was set in a spherical triangular frame, whilst the quatrefoils were in spherical squares which were set diagonally. Below the window head were three trefoiled cusped lights which had tall bases for the mullions worked on the window sills. The window jambs are deeply moulded and the head is framed by a prominent hoodmould. Several pieces of tracery from these or the flanking aisle windows have been identified amongst the stonework collection, and form the intersection between the quatrefoil and trefoil lights. Heavily moulded, they have very prominent sharply pointed cusps which have unpierced spandrels. The window in the south aisle is badly distorted due to settlement towards the south-east respond of the main arcade and this must have given the whole a rather peculiar appearance (Fig. 23). Below the windows was a wall arcade which is now very fragmentary and badly worn away, though its form is known from nineteenth-century drawings when it survived in a better state of preservation (Sharpe 1848). It had a continuous row of arches which were subdivided and had quatrefoils in the heads. Parts of this arcading, which also decorated the aisle walls, survive in the stone dump.

The whole design of the front is dominated by the great east window, now an enormous void where its tracery and windowsill have been knocked out, probably in order to create a vista. The jambs are heavily moulded and have capitals which feature naturalistic

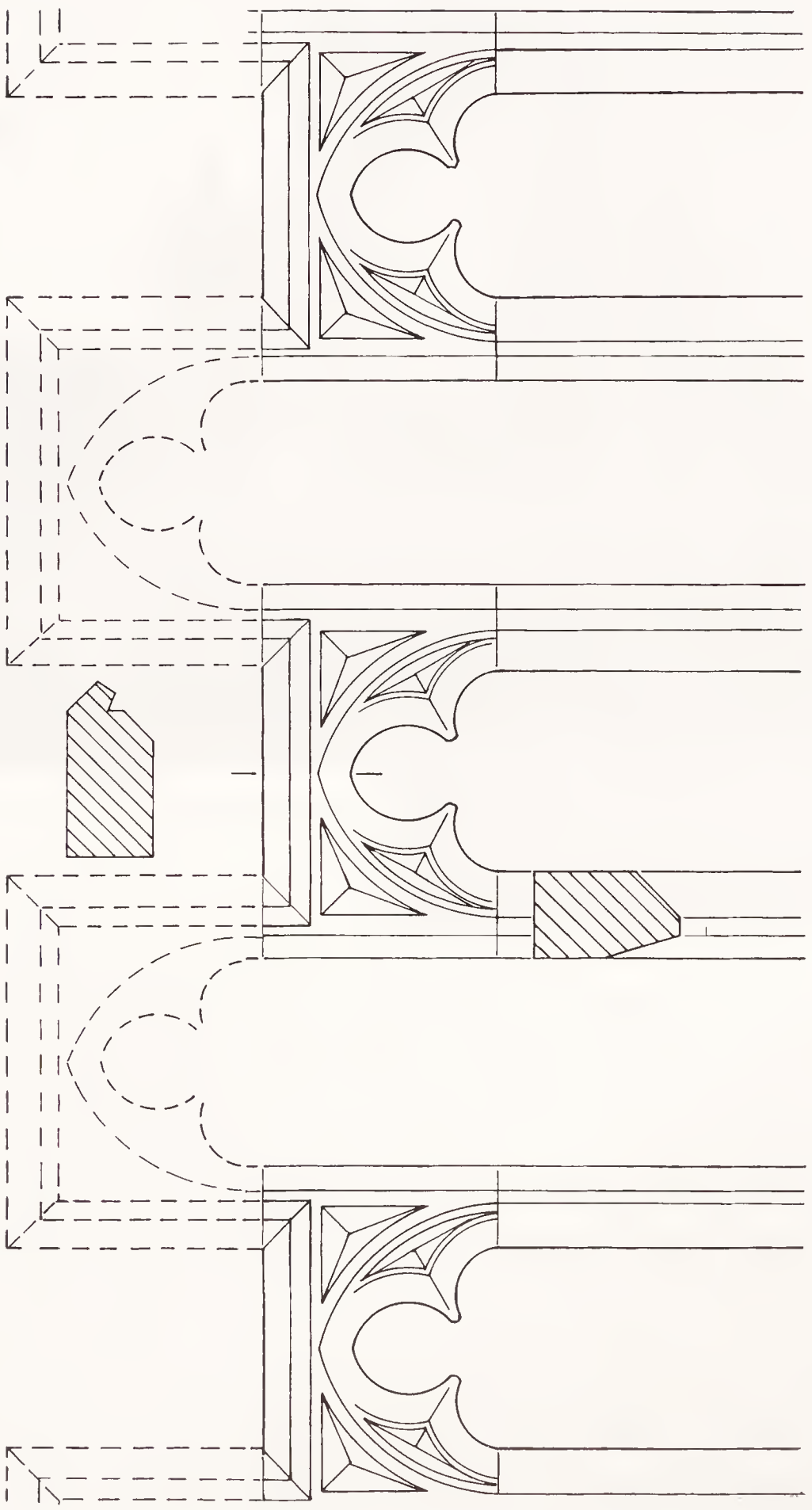


Fig. 17. Reconstructed drawing of the arcaded parapet with pierced cusped openings.

Fig. 18. The east wall of the presbytery.

foliage of oak leaves with acorns. Internally there is a band of foliage which is carried up each jamb and throughout the window head which is steeply pointed with the arcs of curvature struck from the opposite springing point. Substantial stubs of tracery survive though unfortunately parts of these are decaying quite rapidly. The head is filled with the upper part of a large circle, subdivided internally with a series of pointed trefoils which alternated around the circle. The trefoils were subdivided by iron cross bars set in lead packings and substantial traces of these survive. Though little loose tracery from this window appears to have survived, two pieces from the circle have been identified and these form part of the trefoil subdivisions. The geometry of these surviving stubs and the loose pieces show that the trefoils were less attenuated in form than had previously been supposed. The tracery below the upper circle consists of the springers for a pair of large arches, the curves of which are struck from a single central point, and which subdivided the window. These retain on the soffit the outline for the tracery subdivision of the lower window lights. These have been carefully measured and it is possible to project their full form and determine the spacing of the mullions with some certainty. The window tracery was first reconstructed by Edmund Sharpe in the 1840s, and he interpreted the tracery layout as having seven lights with two main groups of three lights under an enclosing arch with a single light in the centre (Sharpe 1948). The enclosing arches were supported by a pair of supermullions and the whole employed a graduated tracery system similar to that employed in the east window at Ripon Cathedral (Hallet 1909, 60–63). Sharpe's drawing shows each three-light arrangement with three trefoils in the head supported by a row of trefoil-headed lights. Examination of the surviving

Fig. 19. The south-east buttress of the east front.

tracery stubs and their geometry shows that this arrangement is incorrect and that instead of being struck as single arcs the foils have a double arrangement of arc centres and are in fact the remains of quatrefoils whose shapes have been subtly altered by clever manipulation of their geometry. The lower range of lights had trefoil heads, like those shown by Sharpe, and which also appear on the blind panelling of the south-east corner buttress (Fig. 19). The window was substantially reinforced by iron bars and the position of these has been indicated on the reconstruction drawing. Set in lead packings the stubs of the ironwork shows that it was up to 5 cm deep and 2 cm thick and besides reinforcing the fabric also served as support for the glazing panels.

In the gable above the main window is a much smaller window with more simply moulded tracery of five lights with a cusped circle in the head. The lowest cusp of the encircled quatrefoil has the base for a small statue, thought to have been of the Virgin. The gable above has a lower pitch in contrast to the steeply pitched roofs used in the earlier twelfth and thirteenth centuries. Each corner of the front has the remains of a stair turret for access to the upper parts of the building. The stairs have octagonal caphouses with tall conical spires which are decorated on the angles by prominent moulded foliate crockets, most of which have lost the prominent projecting foliate terminal. The stairs give access to a walkway across the interior of the front at the base of the windows and a doorway giving access to the parapet walkway above the aisle roofs. The parapet had a sloping capping with a roll moulding along the top edge, the outline

of which survives at the side of the doorway. The aisle roofs were provided with stone hoodmoulds but when they came to be built the lead was flashed in above the sloping hoodmould instead of below it showing that the roofs were higher than originally intended. From the top of each turret there is also a passage in the thickness of the wall, which has a small twin-light window to light the passage and also the space between the aisle vaults and the aisle roof. At the end of the passage there is a doorway into the aisle roofspace and entrance to a second stair turret which gave access to passageways in the triforium and clerestories of the presbytery and higher still to the main roof parapet walkway. At this level there was also a passageway, connecting the angle turrets, through the gable base. The top of these upper turrets are treated in a similar manner to those below but the spires are much less steeply pitched. Above the clerestory there is a foliate cornice which supported the parapet of the high roof. This frieze consists of trilobed stiff leaves, and at regular intervals, boldly projecting crockets. This type of eaves cornice with a band of leaves was also employed, in a contemporary context at York Minster on the chapter house, vestibule and nave (Coldstream 1980, 16–20) and at St Mary's Abbey, where a stub of the nave north aisle foliate parapet cornice survives against the west wall of the north transept. It may originally have been first used in the earlier thirteenth-century York Minster transepts.

THE PRESBYTERY ARCADE

The lower part of each stair has been removed but on the north side sufficient remains to show that the aisle wall had panelled wall arcading below the windows which was pierced with a doorway giving access to the stair. There was a short passage within the thickness of the aisle wall and part of its ceiling in the form of a miniature quadripartite ribbed vault has survived. The aisle wall arcading was also carried around below the east window but unfortunately it has been largely robbed away, leaving only stubs which are very worn and the exposed core of the wall which has a lot of reused twelfth-century mouldings. The surviving pieces of the arcade have cusped tracery arches set in a moulded frame supported by shafts with bases and foliate capitals.

Only the stubs of the main arcades survive against the east wall. The responds have prominent tiered bases supporting five shafts with fillets and short naturalistic foliate capitals. Towards the aisle an additional smaller shaft, standing on an extension of the main respond base, carries the eastern wall rib of the aisle vault. In the corners of the aisles similar shafts are provided but are discontinued at the level of the window bases, showing an alteration in the design. The aisle vault wall rib is acutely pointed and at the apex of the arch is a foliate boss. Amongst the stonework collection are two complete vault bosses which probably originated in the aisle vaults. These are from the intersection of the diagonal ribs and are divided into quadrants and have large seaweed style foliage decoration (Fig. 24). The surviving wall rib boss shows that the aisle vaults featured ridge ribs and the loose vault bosses show outlines for the abutment of these ribs. Also amongst the stone dump is a foliate boss from the intersection of the transverse ribs which also shows abutment for ridge ribs (Fig. 25).

The jambs of the aisle side windows are similar to those in the east wall but lack the band of foliate decoration up the jambs and around the window head. The windows were flanked, in the south aisle, by small narrow niches with statue brackets corbelled from the wall and gabled canopies with cusping and foliate finials. These are absent on the north aisle wall. The remains of the main arcades (Fig. 26) show an arrangement of complex arch mouldings with a soffit and two orders towards the main vessel and aisles. The base of the triforium is marked by a moulded stringcourse. The triforium was framed as a single unit with the clerestory within an enclosing arch comprising two filleted rolls.

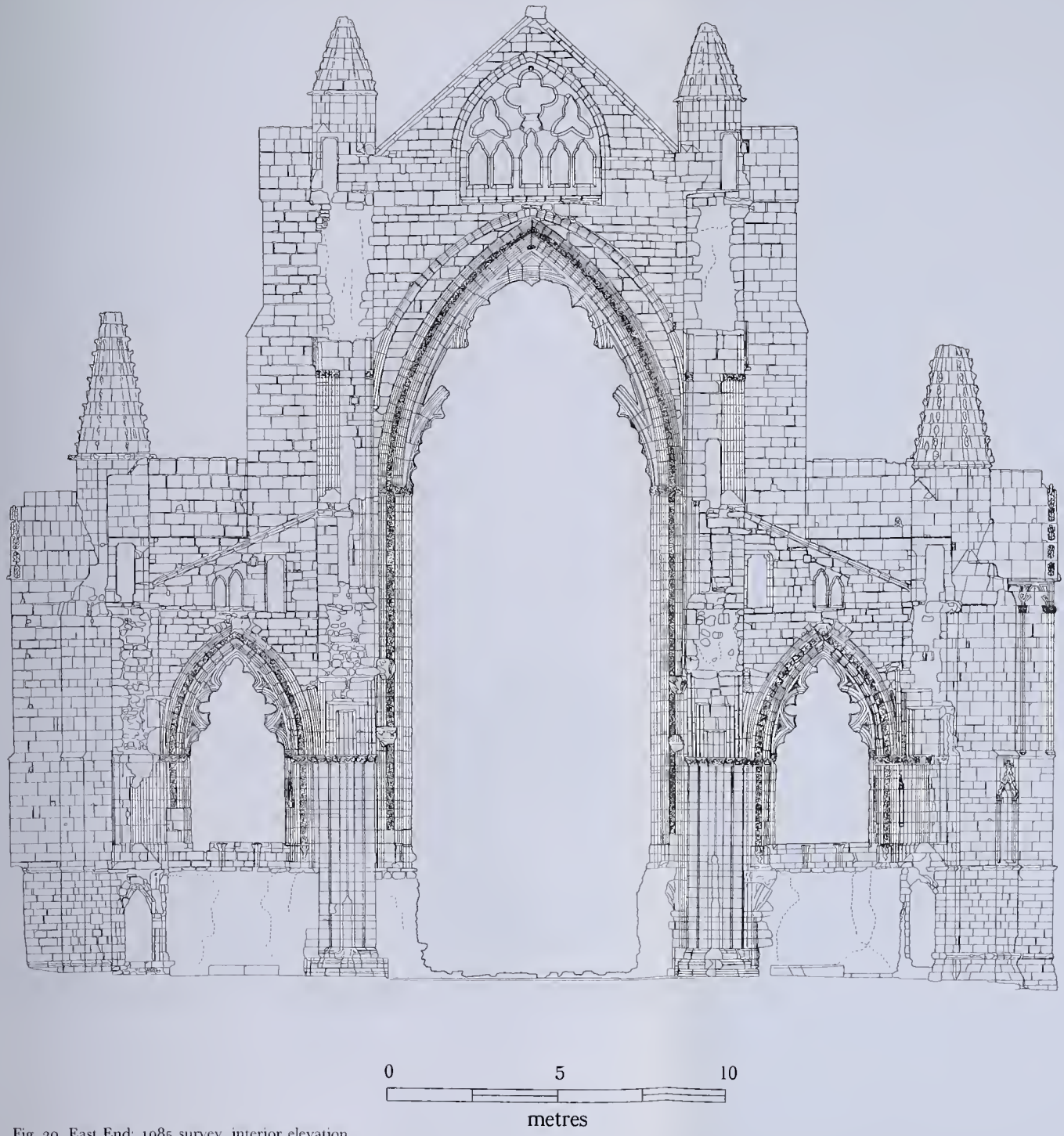


Fig. 20. East End: 1985 survey, interior elevation.

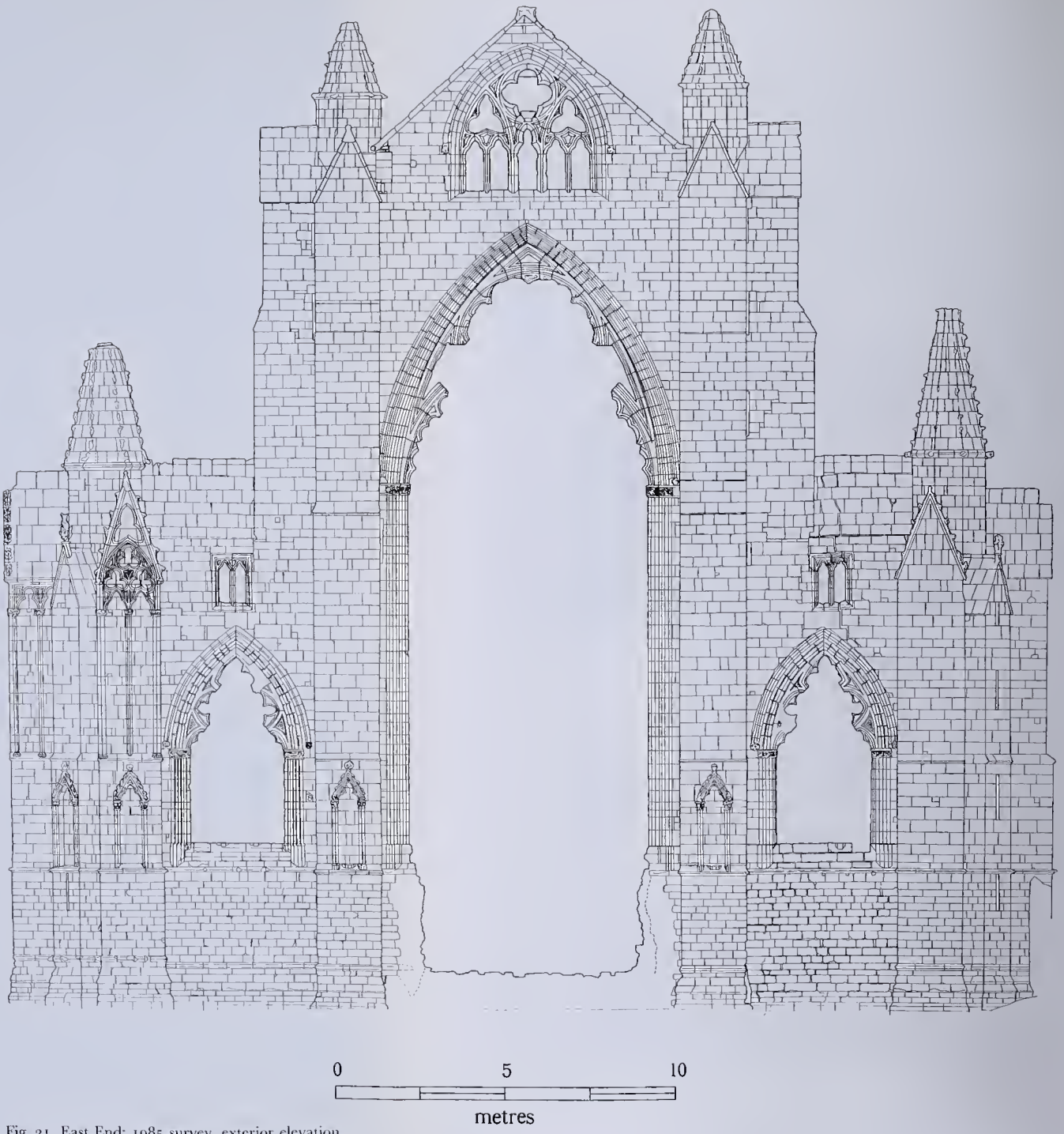


Fig. 21. East End: 1985 survey, exterior elevation.

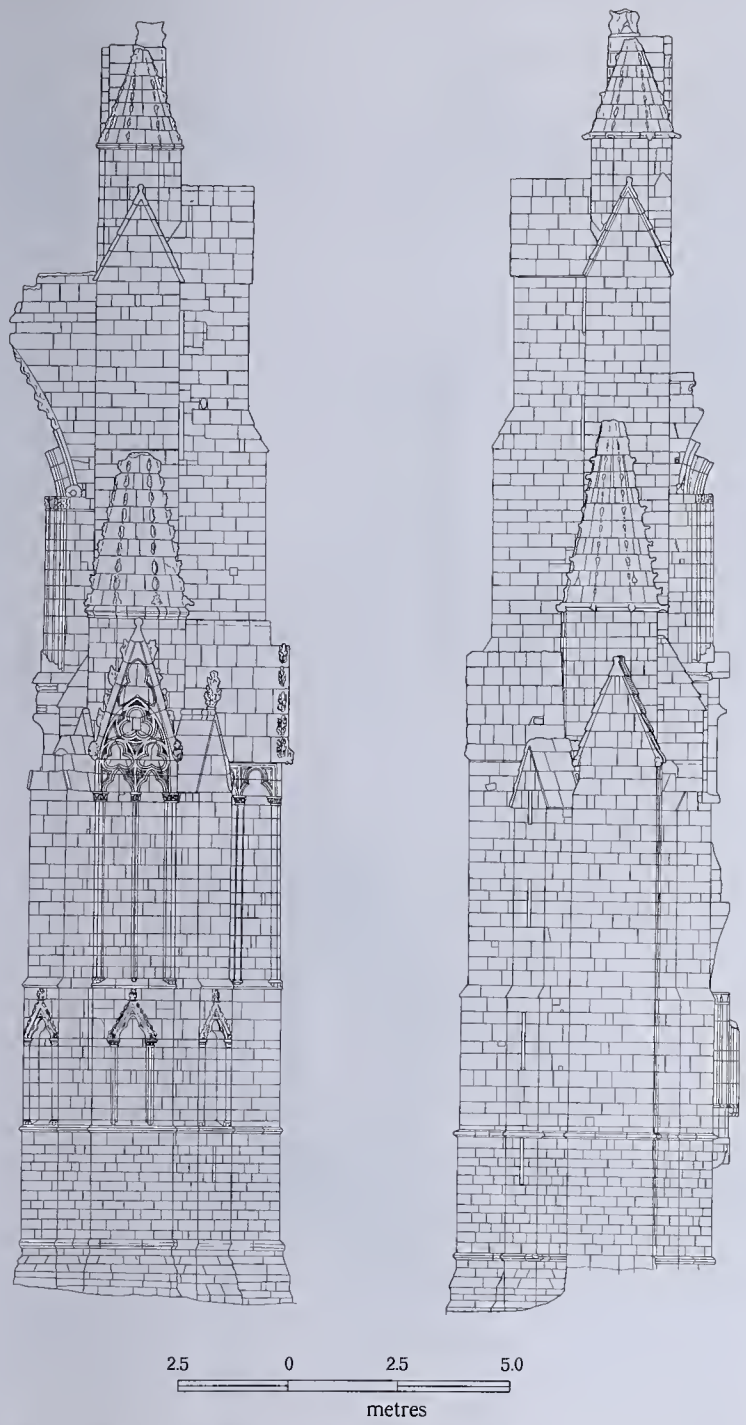


Fig. 22. East End: 1985 survey, north and south elevation.

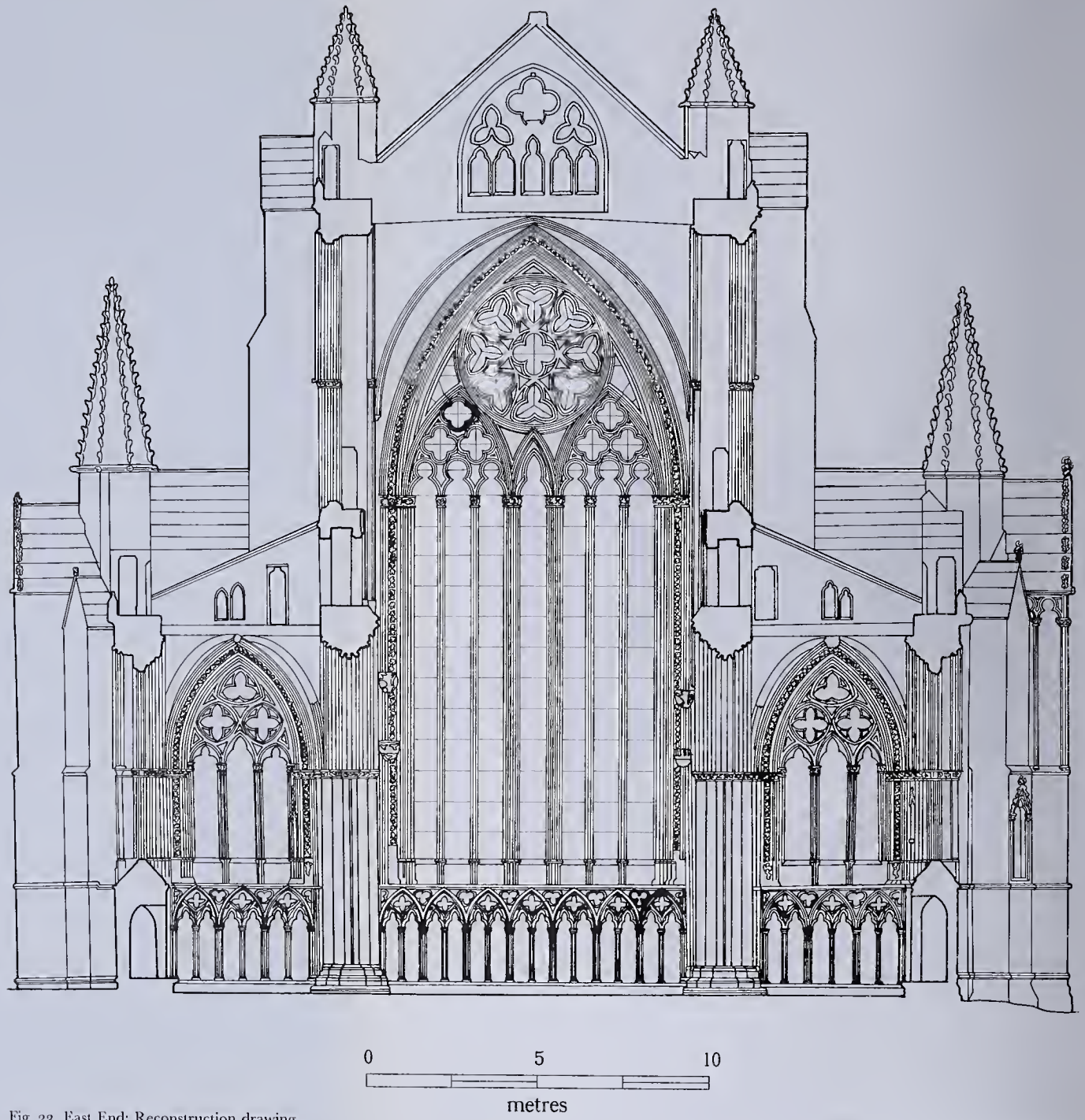


Fig. 23. East End: Reconstruction drawing.

The triforium jamb has an additional order of two moulded rolls which terminate in a sloping angled face. This may indicate that it was originally intended to carry the moulding up to form part of an inner screen of tracery but this was abandoned during construction. Instead it seems likely that it was mitred and returned as a horizontal stringcourse along the base of the clerestory. The triforium comprised a series of open trefoil-headed arches framed by a stringcourse with a series of blind quatrefoils framed by a second stringcourse above.

The clerestory was very wide and high with small foliate capitals at the springing of the internal and external arch heads. The windows retain their moulded jambs but, unlike the east window, have lost all their tracery. The windows were made as large as possible by positioning the sills directly on top of the triforium and springing the window arches above the springing for the high vault. This was achieved by setting the window arches concentric with the wall rib of the high vault and making them segmental in form. Whilst this enabled the windows to be made as large as possible it meant that there was an awkward angle at the springing point of the windows. The high vault springs from a shaft in the corner angle with the east wall and has prominent wall ribs. Some minor problems with setting out were apparently experienced and whilst the north arcade makes a close junction with the east wall, on the south there is a gap with plain masonry between the vault wall shaft and east window, with the consequence that the vault springer is spaced to the east and does not sit above the shaft intended for its support. This obvious error seems to give some indication of the progress of the works and many other less obvious minor errors and adjustments give clues to the sequence of building. Above the springers for the aisle vaults there are parts of the stone webs of the vaults but above the high vault there is no sign of any stone webbing. This together with the immense size of the clerestory windows indicates that no masonry vault was ever constructed and that a timber vault covered the presbytery instead. That this was the case is reinforced by the absence of doorways from the stair turrets into the vault pockets at the east end, which would almost certainly have been provided with a masonry high vault.

The sole discussion document for the design of the arcade is Sharpe's reconstruction drawing. This, in common with many of Sharpe's drawings, suffers from a lack of correct detail due to making site notes and drawing the reconstruction without checking the end product against the surviving fabric. Sharpe shows a relatively dumpy main arch but the proportions of the remains suggest that they were more acutely pointed. The triforium he shows has a row of six trefoiled arches set in a frame with pointed quatrefoils above. The surviving stubs of these features confirm that there was in fact two parallel rows of open trefoil arches with a wall passage between them. Above there was a band of quatrefoils, in a frame, but these had rounded not pointed lobes. Amongst the loose stonework there are two springers which formed part of the triforium trefoiled arch arcade. These show that each springer was subdivided by a substantial shaft cluster which matches with that at the edge of the bay (Fig. 27). This has important implications for Sharpe's reconstruction because it casts doubt on his arrangement of the trefoiled arches. From the photogrammetric drawings which show the springing of the arcading, the loose springers and the partially surviving blind quatrefoils it is possible to show that there must have been only four, not six trefoiled arches per bay. This is confirmed by the curved trajectory of the clerestory window head which can be projected to determine the centre of the bay and the outline of the windows. The bay design as reconstructed (Fig. 28) looks considerably different to Sharpe's illustration and the presence of the hitherto unsuspected shafts between each trefoiled arch in the triforium has fundamental significance concerning the evolution of bay design. It seems clear that these shafts form part of a scheme in which it was intended that the tracery of the clerestory windows would be set in line with the

Fig. 24. Vault boss decorated with seaweed foliage, probably from the diagonal ribs of the presbytery aisle vaults.

internal wallface and the mullions of the clerestory windows were to be carried down into the triforium. This scheme was never carried to fruition and instead the window tracery was reset in alignment with the outer wallface of the clerestory.

Though it is generally accepted that the Gisborough design falls within the regional late thirteenth and early fourteenth-century developments of the geometrical style of architecture, no detailed analysis of its sources has been attempted. Pevsner (1966, 178) saw a link with the nave of York Minster and raised the questions of mullions linking the clerestory and triforium, and Coldstream (1980, 92 and 96–99) has also drawn some parallels with York. Both these commentators, in particular Coldstream's astute and valuable observations, were moving in the right direction but suffered from the lack of accurate reconstructions. Indeed until now the only published reconstructions were those made by Sharpe, or based on his drawings, which seem to have been accepted as accurate. The acceptance of Sharpe's drawings, in many respects, must have misled many people since they were published in 1848.

The new reconstructions help to trace the source of the design with more confidence and to place it more securely within the regional context. The tracery of the great east window seems to have been inspired by that of the aisle windows in the nave of York Minster. The three-light subsections have an identical pattern with three quatrefoils set above three trefoil-headed lights. The trefoiling of the latter with large round heads is particularly close to York. The same trefoil patterns also appear on the sides of the south-east buttresses and the pattern on the gabled face also appears on the buttresses of the western towers at York Minster (Coldstream 1972, 20, Plate X). Connections can also be made with the tracery of the York chapter house vestibule which employs windows with

Fig. 25. Vault boss decorated with seaweed foliage, probably from the transverse ribs of the presbytery aisle vaults.

large circular tracery heads which have alternating pointed and round trefoils, the former very similar to the trefoils in the head of the Gisborough east window and overall an almost identical pattern to the east window at Ripon Cathedral (*op. cit.* 21). Coldstream has convincingly explored the links between the chapter house, its vestibule and the Minster nave and shown they are probably by the same designer. This is borne out by the setting of the vestibule and chapter house window tracery towards the internal plane of the walls) creating deeply recessed external arches which anticipate or show knowledge of the similar external arches of the nave clerestory (*op. cit.* Plates VIII and X).

The employment of the gabled niches flanking the windows of the south aisle internally can also be paralleled at York. In the main bay the arches, though more acutely pointed than indicated by Sharpe, were blunter than those at York and possibly reflect the lost proportions of the earlier late twelfth-century arcade (see below). Like the Gisborough triforium, that at York has a series of trefoil-headed arches, arranged in two parallel rows with a wall passage between. York has gablets above each arch and these are surmounted by a band of small quatrefoils (Harvey 1977). At York the tracery of the clerestory is set level with the inner plane of the wall and its mullions are carried down into the triforium, exactly as was intended at Gisborough but discontinued in the final scheme. Unlike Gisborough, the York clerestory windows are not set concentric with the vault wall ribs. The York nave employs a timber vault, a copy of the original lost in the fire of 1840. This is of a lierne pattern due to a long delay in completing the minster nave and was originally intended to be of a simple quadripartite form like that at Gisborough (Wilson 1987, 186). Whilst large scale design motifs, such as tracery patterns and triforium design,

Fig. 26. Side view of the stub of the north arcade of the presbytery showing the remains of the arch, triforium and clerestory.

can be identified it should be borne in mind that many minor details such as moulding profiles are also very similar.

In common with the York nave where the principal patrons were commemorated by shields of arms set in the nave arcade spandrels, Gisborough displayed similar shields on the jambs of the east window (Figs 18, 20). Such displays of heraldry seem to have become fashionable in the late thirteenth century and the contemporary gatehouse at Kirkham Priory also has the arms of its principal patrons (Peers 1960, 2–3. Coppack *et al.* 1995, 107–08). Gisborough has also produced a heraldic vault boss, with naturalistic foliage, the shield apparently representing the arms of Latimer, though this does not appear, on present evidence, to have been from the church. York was probably designed in 1289–90 and commenced in 1290 under the direction of Simon, the cathedral master mason (Harvey 1977, 149–56). The close dating of the two buildings raises problems regarding which was the prior design but it seems most likely that Gisborough, as with many earlier features of its architecture, derived its design from York. It may well be the

Fig. 27. Springer from the triforium arches of the presbytery, showing the group of shafts dividing the trefoiled arches which were intended to carry an inner plane of glazed tracery. This was abandoned during construction and the window tracery realigned with the external wallface.

case that master Simon acted as consultant and that Gisborough represents another of his designs. Whatever the case the close similarities in the two designs show that the Gisborough master had intimate knowledge of York.

The devastation of the great fire must have been considerable and details from the Chartulary indicate how the priory was plunged into debt to finance the rebuilding programme. In 1276 the priory income was 2000 marks, and this did not include the income from the Scottish estates, but 16 years later they were heavily in debt. In 1302 the canons were quite proud to have managed to pay off £225 18*s*. 6*d*. from the debts (Brown II, 367). After the fire they petitioned the king to allow the priory to appropriate the revenue of three churches, specifically to relieve the poverty caused by the fire (Brown II, 345). Various indulgences issued during the early years of the fourteenth century show that the work was proceeding slowly (Brown II, 353–57). Indeed Gisborough suffered badly during the war with Scotland and as well as losing revenue took in displaced canons from Hexham, Jedburgh and Brinkburn (Brown II, 353–57). In addition to work on the church, it appears that other parts of the monastic buildings including the south and west ranges were rebuilt. The latter can be connected with the site of the prior's hall which was described as newly built in 1302 when the bishop of Whithorn issued an indulgence to those visiting the chapel of St Hilda beside the New Hall at Gisborough (Brown II, 410–11). This raises the possibility that the work on the church was delayed

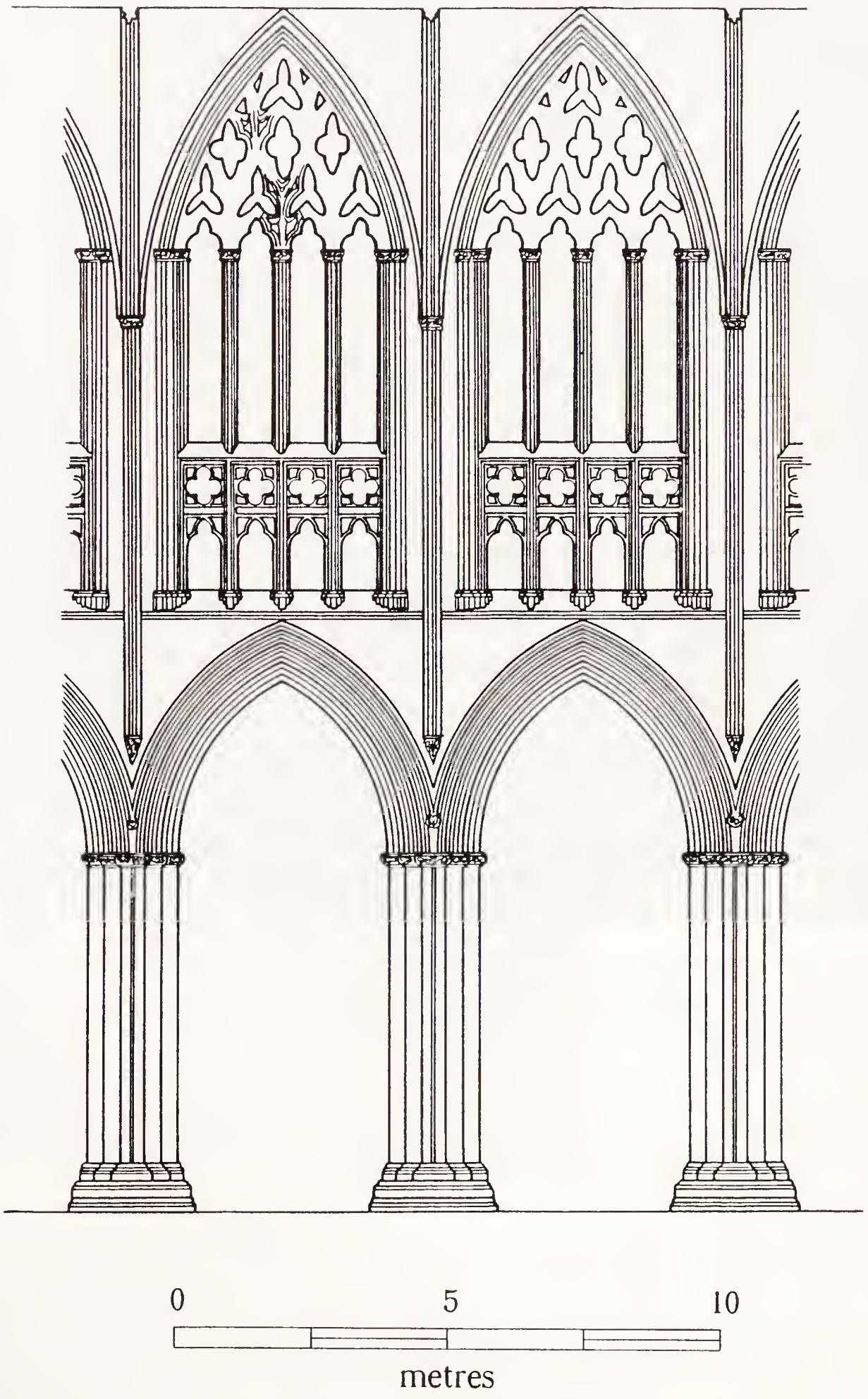


Fig. 28. Reconstruction of the presbytery main bay design.

until York was already well advanced. This may be confirmed by the use of the same tracery pattern on the buttresses which seems to have been abandoned early at Gisborough but appears on the western tower buttresses at York, which Harvey suggests could not have been built until after the removal of the old western towers around 1315–20 (Harvey 1977, 153).

The actual extent of the rebuilding of the presbytery is suspect from the presence of major Early Gothic stonework fragments in the stone collection. That not all the earlier

presbytery was swept away is confirmed by the Hollar engraving of 1660 in Sir William Dugdale's *Monasticon Anglicanum*. This shows that parts of the north aisle were still standing and retained towards the west end the unmistakable outlines of the late 12th-century windows. It would seem that the canons remodelled their church after the fire and grafted a new facade on to the east end. Since the presbytery in its final form apparently comprised nine bays, a length which was unlikely in the twelfth century, but was possibly a reference to the recently rebuilt St Mary's Abbey at York (Wilson and Burton 1988), it seems likely that they extended the building by at least three bays. Internally this would have given an unusual appearance to the design, but one that can be paralleled at Ripon where the virtually contemporary remodelling of the presbytery involved rebuilding only the three eastern bays and adding a new facade (Hallet 1909, 96–104). As already mentioned above in basic design the great east window at Ripon resembles that at Gisborough and overall the facade has the same chunkiness of outline with similar deep heavy buttresses and conical cappings on the stair turrets. In this respect the Gisborough presbytery forms only one of a group of buildings within the region which started at St Mary's in 1272 and also includes, besides Ripon, facades at Howden, Selby, Carlisle and the demolished church at Thornton Abbey. Ripon and Selby also employed timber high vaults whilst Carlisle had an updated version of the timber barrel ceiling. All these fronts have a strong regional flavour and similar characteristics.

CHOIRSTALLS

Amongst the loose stonework are several pieces of the choirstall sub bases (Fig. 29) which have a moulded projection on the front marking a buttress division in the timber stallwork and small cusped quatrefoils set within a circle which were pierced through the bases to ventilate the space beneath the stalls and increase the resonance in the choir. Most of the pieces have quatrefoils but there are also examples devoid of this feature. Presumably these bases were discovered during Admiral Chaloner's excavation of the church and confirm that he was digging in the choir. It is unlikely that they were found *in situ* and the excavators probably never realised what they were and the bases were removed from the church along with the other loose debris.

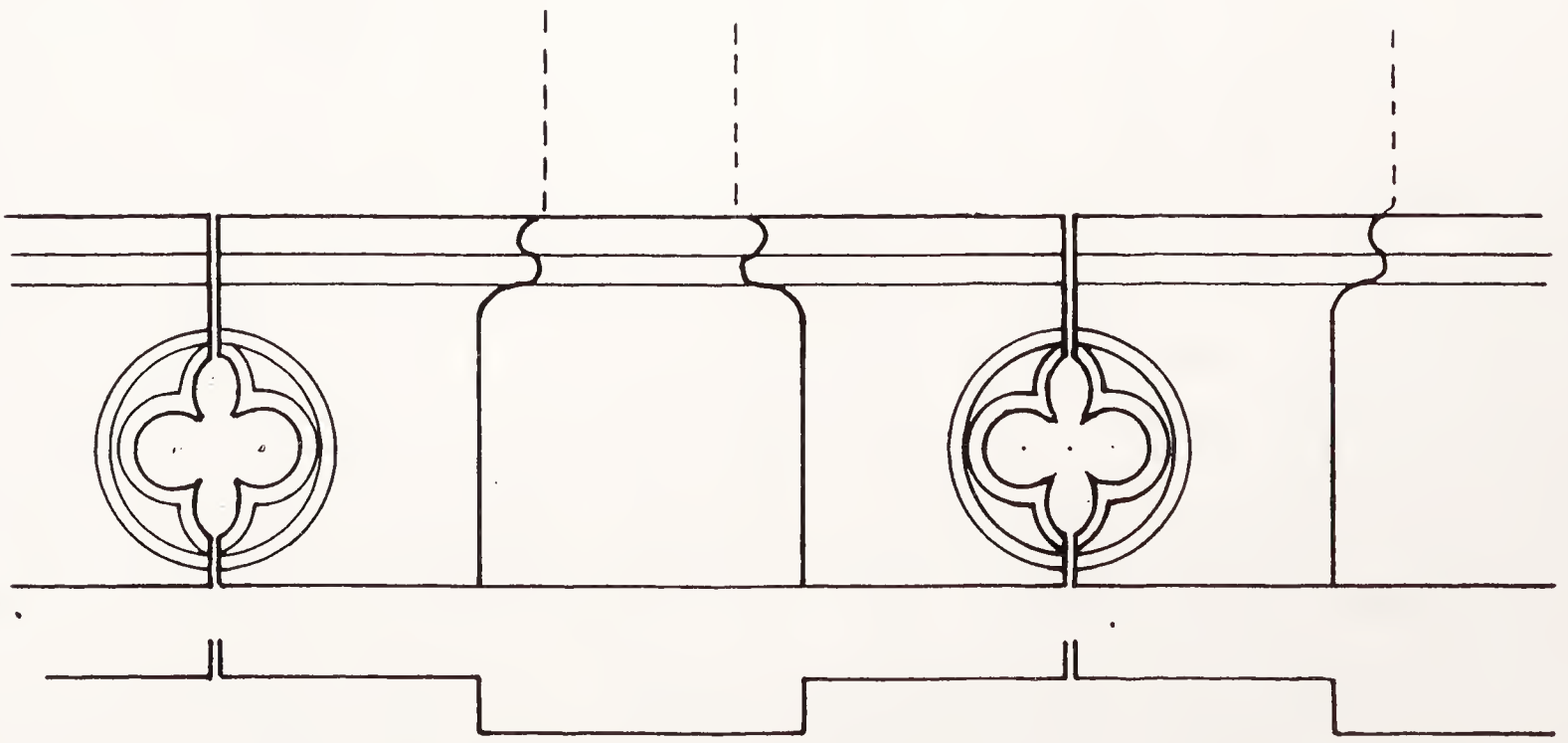


Fig. 29. Elevation of the sub-bases of the presbytery choirstalls (Scale, 1 : 10).

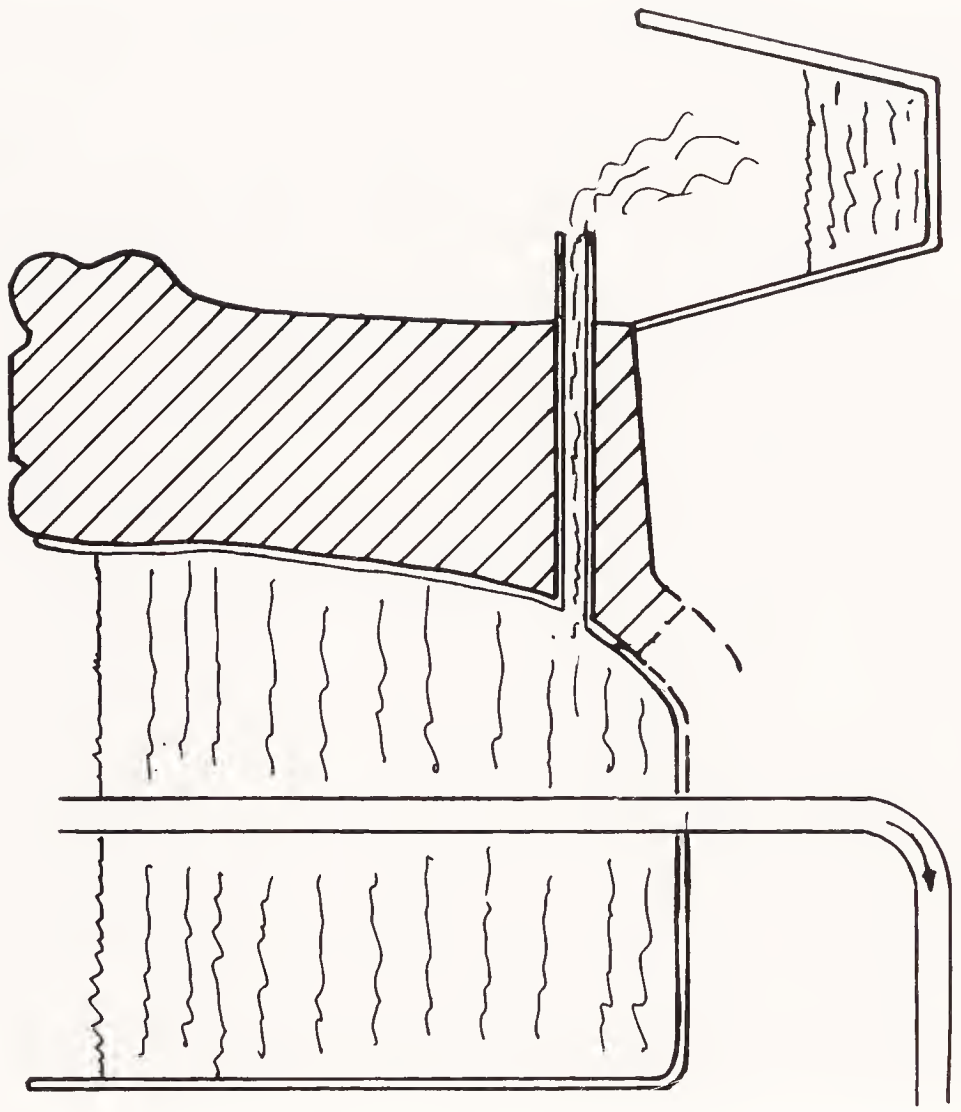
THE CLOISTERS

The geophysical survey (Fig. 3) gives the first evidence of structural remains in the cloister garth. The presence of a north-south linear high resistance feature running parallel to a band of low resistance might indicate a path across the cloister, perhaps with grave slabs and/or stone coffins to one side. There is nothing known of the later history of this area which might explain this feature; the cloister garth had become a bowling green by 1709 (Knyff drawing, reproduced in Harrison and Dixon 1982, Plate 4) with the surviving fragment of the south range serving as some sort of clubhouse. The survey shows the eastern arm of the cloister very clearly and gives the width of the range along this side (approx. 12 m).

Included amongst the loose stone work are parts of a laver. This is made from Frosterley marble and represents the facia in front of the water distribution tank or pipework. It is sufficiently complete to enable a reconstruction of its form and how it functioned to be made (Fig. 30). The facia is moulded along its upper edge and relatively plain in design. It has holes spaced at regular intervals for the lead pipes, some of which remain embedded in the stone where they were cut off at the Dissolution. This is not the only laver of this type which is known for a similar, but more ornate, twelfth-century example has been recognised at Byland Abbey (Harrison *unpub,* 44, Fig. 20 and Coppack 1990, 94, Fig. 60). This was apparently smashed with hammers at the Dissolution in order to recover the valuable lead pipes. Presumably the pipes either spouted water continuously into a drainage trough below or they were fitted with some form of taps. No record remains of where or when the Gisborough laver was discovered but it seems most likely that it was found during the clearance of the western range during the 1950s. Augustinian houses usually had the laver positioned against the east wall of the west range towards the south end of the western cloister alley and this area borders the limits of the 1950s excavation.

THE WEST RANGE

The low walling of the west range, revealed in the excavation campaigns of 1947–54, show a substantial building with a central row of octagonal piers which supported a series of ribbed vaults. These have largely gone and only a moulded corbel against the west wall serves to show the height of the vault springing. Much debris was recovered from the excavation and this includes numerous chamfered vault ribs and some of the springers from the vaulting. The surviving vault keystones show that the diagonal arch ribs were semi-circular and from this it is possible to estimate the height of the vaulting. The west wall has a bold sloping plinth and retains some of the doorway and window openings, distinguished by interruptions of the plinth for the doorways and stepped internal jambs for the windows. At the north end is the entrance to the outer parlour where canons could meet with their relatives. The building is subdivided by inserted cross walls and on the disposition of the doorways must always have formed a series of distinct chambers. The south wall has a blocked central doorway and there is a large stairbase ascending towards the north for access to the upper chambers. At the south end of the range it is intersected by the west end of the south range which has a large chamber which was vaulted with two large recesses along the south wall. The eastern end of this structure can be clearly seen on the geophysical survey (Fig. 2). Adjoining on the south there is a vaulted passage with semi-circular arches with chamfered ribs, springing from moulded corbels. This appears to be contemporary with the details of the west range and seems to have formed part of the same scheme of rebuilding. The passage apparently continued further east for springers for an additional bay of vaulting have been crudely hacked away. In the south wall is a hatch which must have been used to pass food from the



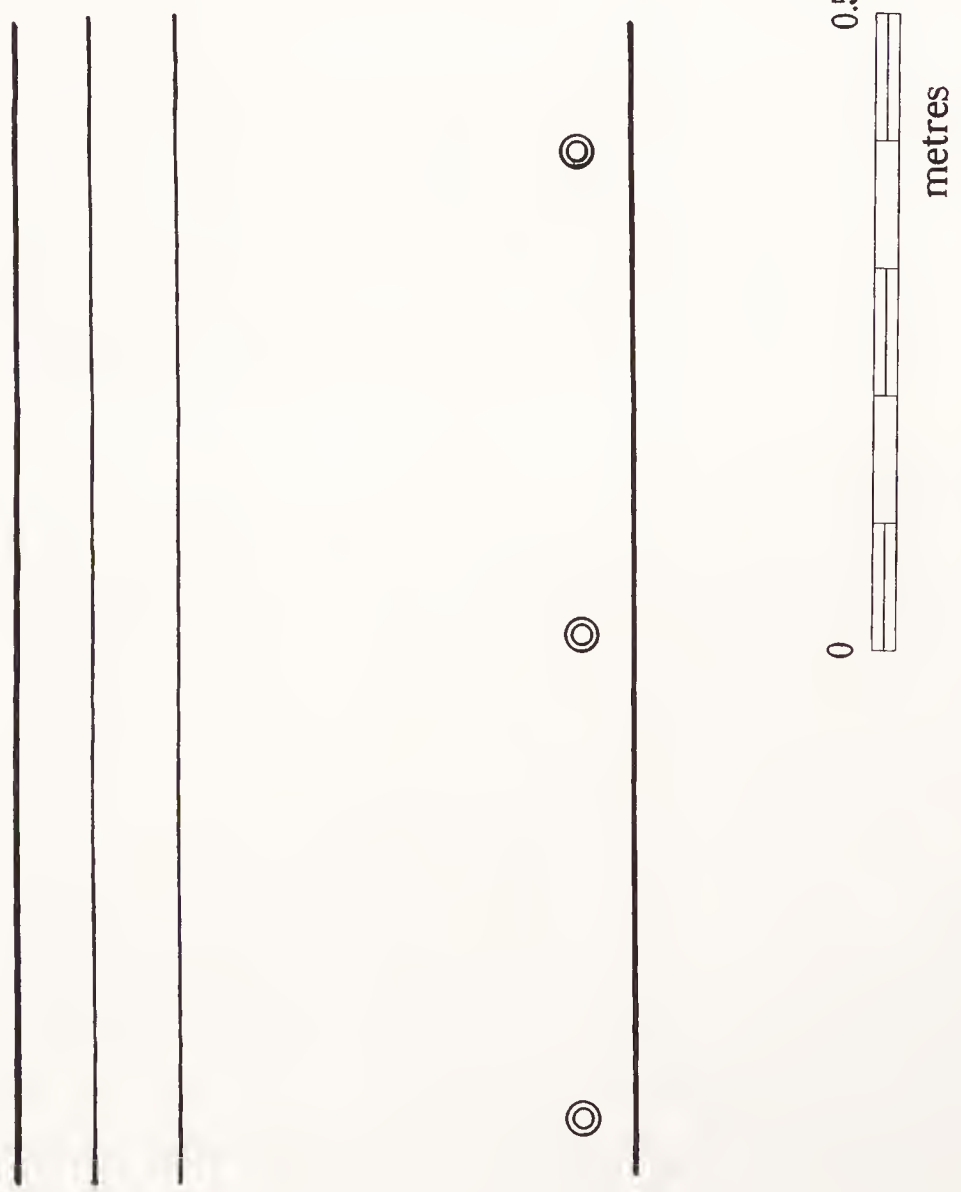


Fig. 30. Reconstruction of the Frosterley marble laver (Scale, 1 : 10).

kitchen, on the south side, through to the passage to the frater. The rest of the claustral buildings are deeply buried and await future excavation, but can be traced on the geophysical survey. A rectangular feature to the south-east of the cloister represents part of the refectory. The absence of walls to the west of this must represent differential robbing following the Dissolution.

THE GATEHOUSE (Fig. 31)

The gatehouse apparently remained in use into the eighteenth century (Coppack 1993) but eventually was stripped of its roof and allowed to decay. The surviving remains show that the building dates from the middle years of the twelfth century and is typical of gatehouses built at that time. The main gate passage faces north and the facade has a single large round-headed arch flanked by buttresses. The arch is deeply moulded though unfortunately heavily weathered. The interior passage is decorated by a stringcourse which is carried around its capital as an abacus. In the internal angles are decayed moulded corbels which support the springers of a vault. These do not form part of the original design and are clearly inserted into the existing fabric. The surviving details of the corbels suggest a late thirteenth century or fourteenth-century date for the vaulting. The gate passage is subdivided by two cross arches, the larger of which is an unusual shape, presumably in order to allow the maximum amount of headroom for wagons passing through the gatehouse. The smaller arch was for the use of pedestrians. South of these cross arches the building is largely ruined but would have extended at least another bay and had another large round-headed arch. The gates would have been hung on the pair of cross arches. On the exterior of the west wall the chamfered base plinth can be traced around the buttresses and it appears that a wall has been built across between them to form a garderobe shaft from the upper floor. In recent repairs a small piece of a twelfth-century scallop capital was recovered from the rough walling on the west side.

A large rectangular hall is clearly visible on the geophysical survey to the east of the gatehouse (Fig. 3). The dimensions of this are approximately 22 m × 17 m. The interior space has a uniform, moderate, resistance, possibly representing the intact floor. Part of the north wall of this has been incorporated into the present precinct wall containing a small chamber or passage within the width. There is a gap to the south of this, and then evidence of extensive buildings between the west range and the dovecote, in the present market garden.

THE MASONS OF GISBOROUGH

A considerable number of the names of masons working at Gisborough are known from charters listed in the priory Chartulary. Mainly occurring as witnesses they can be separated into two distinct periods. The first covers charters granted during the time of priors Roald (occurs 1199), Lawrence (occurs 1211, *quondam* 1219) and Michael (occurs between 1218 and 1234) and the names include Radulfus (G C I, CXX), Roberto (*op. cit.*, clxii; xlii mentions Roberto and Radulfo together), Gylbertus (*op. cit.*, clxxx) all of whom are described as *cementarius*. Within this same group of charters mention is also made of Gocte (*op. cit.*, clv) and Alanum (*op. cit.*, clxiv) who are described as *carpentarius*. Hugo *Fabro* (*op. cit.*, cxxxiv) perhaps a smith and another charter mentions Alberto *filio* Symonis *Fabri* (*op. cit.*, cv). Whilst references have been given to specific charters it should be noted that some of the names feature throughout a number of charters, Radulfo, for instance, being mentioned in at least nine different documents.

The second series of charters is dated firmly to 1250 and refers to two distinct building projects. The first is the *elemosinariae*, apparently referring to the Almery. Gilberto (*op. cit.*,

Fig. 31. The gatehouse, south elevation.

cclxi) described as *cementarius*, William de Selby, *caementarii* (*op. cit.*, ccli) who was described as the son of Roberti *Caementarii* (*op. cit.*, ccl). Mention is also made of Elyas son of Roger *Caementarii* (*op. cit.*, ccliii) and Thomas *Caementarri* (*op. cit.* cclviv) who occurs as a witness to a charter issued by Elyas which mentions *Magistro* Roberto *Caementario Magister* Gylberto *Caementario* as one of the witnesses. Adam Horner is described as *Magister Caementarius*. Roger *Caementarii* also occurs, presumably the father of Elyas (*op. cit.*, cclvii).

The second building project was work on the church, possibly the construction of the western towers and facade. Radulfo and Henrico are described as *caementario* (*op. cit.*, cclxi) and Roberto is mentioned as the son of Henrici *Caementarii* (*op. cit.*, cclxxxv). Radulfo *Magister Caementario* occurs (*op. cit.*, cclxxxix) as a witness to a charter of Nicholas and in the following charter by the same donor one of the witnesses is Radulfo *Caementario* (*op. cit.*, ccxc). The following charter is one by Radulfus son of Stephen *Caementarii* which has *Magister* Gylberto *Caementario* as one of the witnesses. Adam Horner is described as *Magister Caementarius* (*op. cit.*, ccxcvi). Elyas son of Rogeri *Caementarii* recurs and his charter mentions *Magister* Robertas *Caementarius* (*op. cit.*, ccxcviii). Henrico, Gylberto, Roberto, Radulfo and Hugone Fabris all occur as witnesses to further charters. Besides the specific titles of *Caementarii* or *Magister Caementarius* mentioned above, a charter of Willelmus mentions 'a *Domino* Stephano, *tunc Magistro fabricae S. Mariae de Gyseburn*' (*op. cit.*, ccxcv). Stephano is also mentioned as *Magistro* in another charter (*op. cit.*, cccii) and Janet Burton, in her unpublished study of the charters, has identified this as referring to the master in charge of the building works and dates this reference to the period 1185–1195 AD (*op. cit.*, ccxciv). Apparently Stephen did not have sole responsibility because another charter mentions Stephen and Robert, masters of the work (*op. cit.*, ccxxcv).

These lists of masons are confused by the apparent recurrence of certain names and the variety of titles employed. It certainly seems from the descriptions that these were

related family groups in which the trade was handed down from father to son. William de Seleby son of Robert Cementarii suggests a connexion with Selby Abbey and that William had learned his trade working at the Benedictine abbey. Several masons are described as *Magister* including Robertus, Gylberto, and Adam Horner and this may mean that they were senior masons under the control of *Domino* Stephano who is *Magistro Fabricae*. His title of *Domino* suggests that he was a member of the religious community. Alternatively, each *Magister* may have had control of one particular building project such as the almery or church, or even have been retired and no longer practising his trade but still retaining his title. The repetition of some names from the earlier thirteenth century may show the survival of the same masons into the middle of the century, though all the names are relatively common. The fact that several of the masons were making grants to the fabric shows that they had prospered at Gisborough and that they expected the work to continue for some time to come. In the event the great fire of 1289 must have exceeded all their expectations of future employment.

ACKNOWLEDGEMENTS

The project was instigated by the Properties in Care Section of English Heritage, and warm thanks are extended to Stephen Johnson, David Sherlock, James Lang and Glyn Coppack for support throughout the work. The staff of Cleveland Leisure Services were responsible for the efficient administration of the Gisborough survey work, particularly Blaise Vyner, the County Archaeologist, and Louise Hutchinson, who drew the east end elevations, and Newcastle City Council performed that task for the report production. David Glendinning was the Project Draughtsman.

Stuart Harrison would like to thank those who helped in various ways during the writing of this report. Bryan Wynn, then site custodian at Guisborough, helped with various aspects including access to stored material and general knowledge about the site. Glyn Coppack provided information gained during his researches for the site guidebook whilst Janet Burton most kindly provided a copy of her unpublished study of the priory charters and discussed the section relating to the masons. John Hutchinson commented on the reconstruction of the east window tracery. Ray Conn, the site mason, proved an interesting fund of knowledge and drew my attention to the surviving fragment of window jamb which matched with the masons' drawing on the church paving.

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WHORLTON OLD HOLY CROSS CHURCH, SWAINBY, NORTH YORKSHIRE

By Blaise Vyner

Report on archaeological recording carried out in conjunction with repair work, 1996–97

An archaeological watching and recording brief carried out in conjunction with repair work at Old Holy Cross Church, Whorlton, Swainby, North Yorkshire (NZ 48350247) recovered the plan of the chantry chapel and clarified the extended structural history of the church. A late eleventh-century grave-slab, utilised in the foundation of the chantry chapel wall, was discovered during the excavation of a drainage trench.

INTRODUCTION

Repair work carried out on the fabric of the church and with drainage works around its perimeter necessitated associated archaeological work which was commissioned by Swainby Parochial Church Council and undertaken in liaison with the architect, Ronald Sims, and the contractor, Peter Martin. The work was carried out intermittently between June and September 1996, being completed during February 1997.

The repair and restoration of Old Holy Cross Church has revealed further evidence for the history of the church, some of which raises more questions than answers. The work has been valuable, however, not only in adding new information, but also in stimulating the first assessment of the church in terms of the archaeology of the building, rather than in reference to architectural or documentary history (Fig. 11). This provides a sequence against which absolute dates can be placed, or which can be related to the fortunes, dated or otherwise, of the manor, castle and village of Whorlton.

While precise dates are lacking, it is clear that the church enjoyed a period of continuing development through the thirteenth and fourteenth centuries, its importance attested by the presence of a very high quality wooden effigy of a knight (Fryer 1909, 552), supposed to be Sir Nicholas de Meynell who died in 1322. The church reached its greatest size during the fifteenth century, when a chantry chapel was added to the north of the chancel. By this time the nave had been expanded to include aisles to north and south. During the fifteenth century the church was the location of a substantial canopied tomb, which was later to became the base for the Meynell effigy.

The church was further altered during the fifteenth century, however, with the demolition of the south aisle and the construction of a tower on the south side of the nave. Further alterations followed, with the demolition of the north aisle, probably early in the nineteenth century, being followed by the consolidation of the chancel as a mortuary chapel in 1875 and construction of a replacement church in Swainby.

THE SITE

Whorl Hill, 1 km to the east of Whorlton church, is the location of a substantial late Roman silver hoard, discovered in 1810 (Hartley 1978, 13). Roman pottery was discovered during drainage works for the extension of Whorlton churchyard in 1907 (Fowler 1909, 208). This discovery prompted excavations to the east of the church in 1923, when medieval pottery was found perhaps associated with a cobbled surface. A campaign of

trial excavation around the church itself was conducted in 1927, when a few sherds of Roman pottery were discovered (Elgee 1929, 31–32). Excavation work carried out in conjunction with a further extension of the churchyard in 1977 recovered further Roman pottery associated with a shallow ditch or field boundary (Hartley 1978, 14). Although it has been suggested that the church may lie at the focus of Roman activity (Elgee 1929, 32), no trace was seen during the present restoration campaign. However, as the gravel-clay subsoil would seem to offer a firm foundation, the repeated rebuilds of the east end and south side of the church may suggest the underlying presence of ditches or pits.

Whorlton church lies to the east of an extensive series of earthworks associated with the castle and later park, and to the north and north-east of the village of Whorlton. The earthwork remains have recently been surveyed in detail (RCHM 1989). The road which leads past the church on its north side, and now affords access to the church, appears to be of relatively recent origin. For much of its history the church was approached from the south, where the earthwork remains of a track leads from the western part of the former village, now represented by a series of earthwork enclosures and platforms.

DOCUMENTARY AND SURVEY EVIDENCE FOR THE CHURCH

There are few early descriptions of the church and none offers any substantial assistance in the interpretation of the development of the structure. According to Graves (1808, 147) the church was in his time:

> a plain and humble structure, with a square tower placed at the side. It seems to have undergone little or no alteration since the aera of the Reformation, and exhibits traces of Roman Catholic worship in the niches for saints, etc. ... Within the church, on the north side of the chancel, in an arch of the wall which divides the chancel from what we suppose to have been the chauntry-chapel, there is an ancient monument of Sir Nicholas de Meynill.

Some forty years later Ord's description was rather more flowery but little more helpful:

> The church is an ancient edifice; the tower placed on one side, fronting the south; the nave and chancel supported by buttresses, and rude heads terminate the corbels. The chancel is divided from the body of the church by a round early-Norman arch. The eastern window (thickly shaded by a dense covering of ivy, which has pierced the old walls from without, and now riots in undisturbed luxuriance directly over the altar) contains some small portions of stained glass.

He went on to say:

> From the windows and walls near the altar project well-carved heads, some of them formed to sustain images of saints or the holy family. South of the altar is a piscina; none of these old remains being much injured or mutilated. A considerable portion of the ancient chantry chapel still exists in a perfect state, extending north of the chapel, and forming a distinct wing
>
> (Ord 1846, 449).

All this is unfortunate as it would be helpful to have had a more detailed description of the old church before the demolition of the chantry chapel and the consolidation of parts of the fabric of the nave in 1875. Subsequent histories have relied upon on an examination of the surviving fabric, supported by the surviving documentary record. Accounts of the church and parish were published by the antiquarian vicar, Reverend J. C. Fowler (Fowler 1892; 1902; 1909a); while the Victoria County History offers a full description of the fabric visible a few years later (Page 1923, 315–17). This is usefully

summarised in the current church guide, which also brings in something more of the archaeological and historical context of the building (Hartley 1978). Perhaps surprisingly, Pevsner's description confuses the south and north arcades and does not greatly concern itself with the structural sequence beyond suggesting that the west bay of the nave appears to be earlier on the north side than on the south (1966, 400–01). Useful information on the architectural detail of the church before the reconstruction work of 1875–76 is included in the specification of the architect, Thomas Wyatt, and in subsequent correspondence contained in the Ailesbury archive of the North Yorkshire Record Office (NYRO). Transcripts of relevant material have been made available through the good offices of Mrs Joan Hartley (see Appendix). Brief study has been made of these and the resulting information has been integrated with the detail obtained in the current survey.

In 1989–90 the Royal Commission on Historic Monuments of England completed a detailed plan of the earthworks surrounding the castle at Whorlton, which provides further detail of the landscape context of the church (RCHM 1990).

ARCHAEOLOGICAL WORKS UNDERTAKEN

A photographic record was made of all areas of the church fabric likely to be affected by the restoration work. This involved 35 mm photography, in monochrome and colour transparency, of the interior and exterior walls of the nave and chancel. It should be noted that the interior of the tower, and the upper parts of its external walls, have not been recorded as they were not affected by this phase of consolidation work.

Below ground disturbance was associated with the excavation of a French drain around the south, east and north walls of the chancel. This was linked by drains to soakaways to the north and south (Fig. 1). Removal of upper levels was for the most part undertaken by the mason's team, with cleaning of features and excavation of lower levels carried out by the archaeologist. Remedial work to buttresses at the south-west and south-east corners of the chancel, to infilled doorways in its north wall, and to fragments of masonry at the west end of the nave, also necessitated archaeological investigation and recording. Raking out for repointing of the nave arcade and chancel exterior walls (Figs. 2 and 3), and removal of plaster from the lower parts of the chancel interior wall also entailed archaeological recording. The photographic recording was repeated following the completion of repair and consolidation work.

The nave

Drainage trench at south-east exterior

A drain trench, 0.25 m wide and at this point 0.35 m deep, excavated along the south wall of the chancel, was extended round the stub of wall forming the existing south-east corner of the nave. This revealed that the chamfered plinth of the chancel south wall made a return to the west on the line of the existing nave south arcade. Below ground level the stub of wall which serves today as a buttress to this corner of the nave was seen to be founded on the remains of the east wall of the nave south arcade. This was butted against the original south wall of the nave. As no attempt had been made to remove the chamfered plinth of this wall the straight joint below the plinth level was continued above by a gap up to 2.5 cm wide. In the arcade east wall the line of the chamfered plinth was maintained by a somewhat larger chamfered course (Fig. 4).

Except for a small element of masonry incorporated in the later buttress, the east wall of the south arcade had been completely removed, the construction of the buttress itself had requiring the re-use of lower course slabs as a somewhat *ad hoc* foundation whose structural weakness had been revealed by a widening of the inadequate straight joint against the original south wall of the nave. The discovery of a number of disarticulated

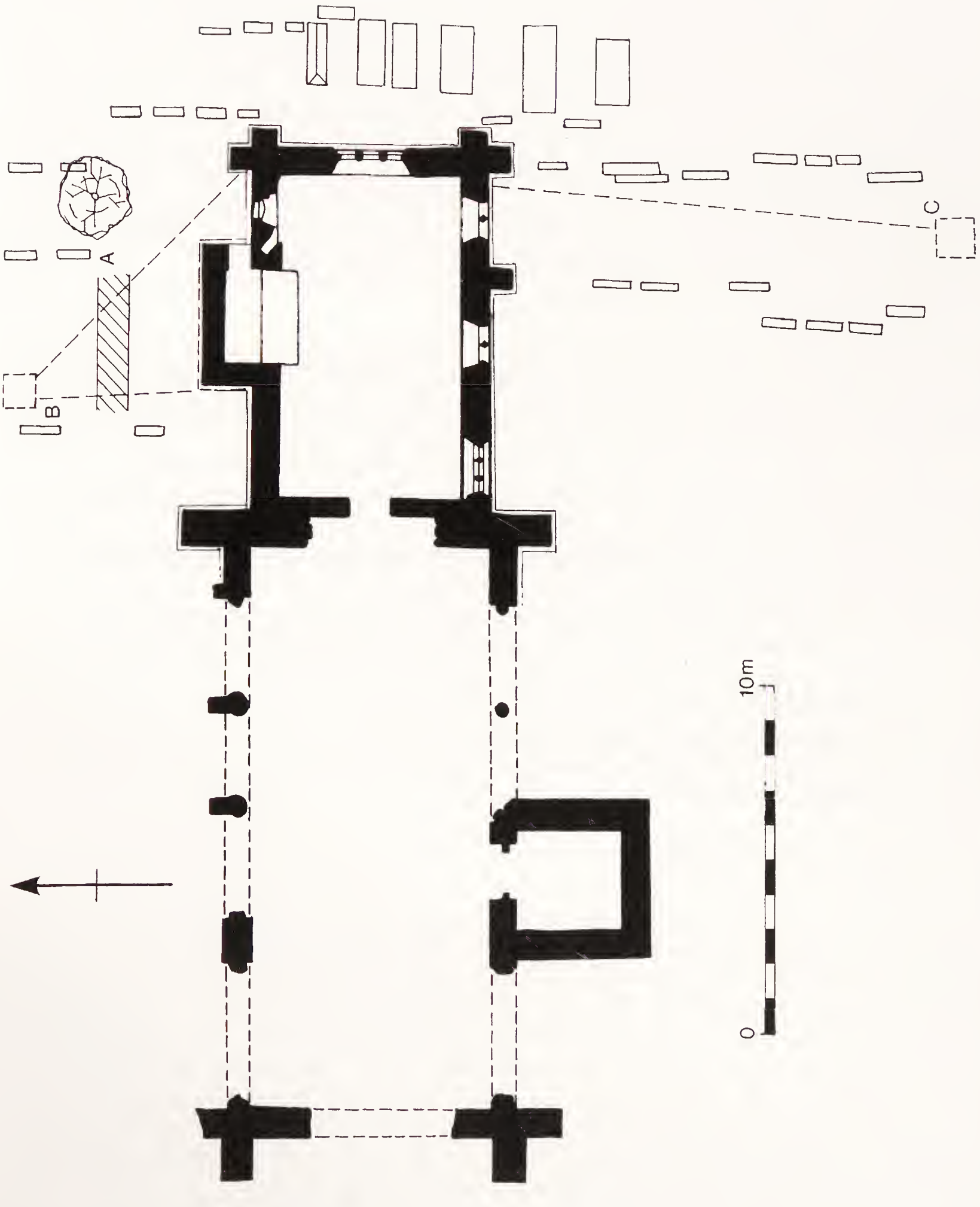

Fig. 1. Sketch plan of Whorlton Old Holy Cross church, showing drainage excavations around the chancel and the location of the chantry chapel north wall.

Fig. 2. Whorlton Old Holy Cross church: nave and chancel arch after repair, 1997.

human bones in this area suggested that the robbing of the arcade wall had disturbed a nearby burial.

Continuation of the drain trench round the stub of the aisle east wall revealed a single large slab of stone set on edge at 90° to the wall face. This may have been a support for the floor or a fitting.

Remedial works to the nave west end

The masonry fragment of the west end of the north arcade was largely unidentifiable beneath a cloak of ivy and rubble. Removal of the overgrowth and loose stone revealed the damaged remains of the buttress extending west from this corner (Fig. 5), and the tumbled masonry of the western pillar of the arcade, including the capital. After photographic recording the roots and loose material were removed and the fragment consolidated, including rebuilding the column to include the capital.

Raking out of loose pointing in the buttress-like fragment at the south-east corner of the existing nave revealed this to be the stub of the west wall of the nave, the core of which was in a perilously loose state. This has now been consolidated and repointed.

The chancel

Excavation of drainage trenches around the chancel

A trench was excavated around the chancel to allow the insertion of a French drain, the trench was on average 0.25 m wide, and varied in depth from around 0.45 m at the west end to around 0.30 m at the east end, where the ground fell away.

Along the north side of the chancel the trench revealed the floor level of the former chantry chapel, except along the centre section of the chancel where this had been removed by the nineteenth-century construction of a wall around the so-called Meynell monument, a critical point where the chantry chapel appears to have been divided, or where it retained the floor of an earlier chapel. The drainage trench revealed at its

Fig. 3. Whorlton Old Holy Cross church: tower and adjacent south arcade after repairs to the arcading, 1997.

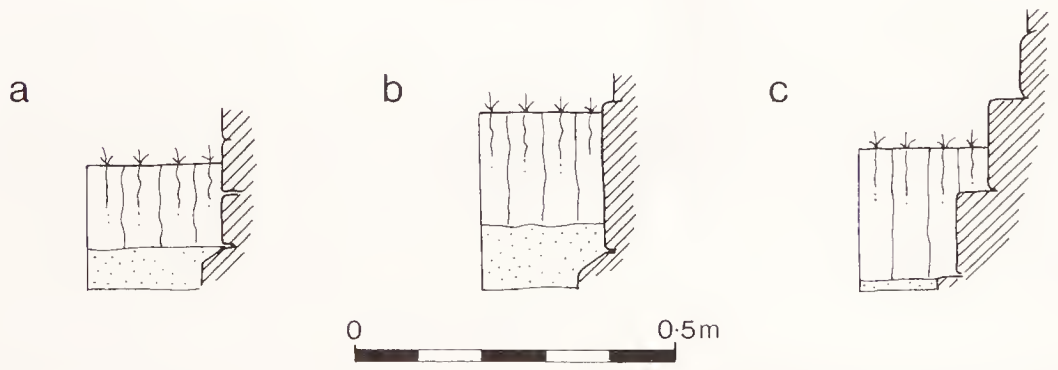

Fig. 4. Detail of chamfered plinth around the chancel: a, west end of chancel south wall; b, nave former east wall; c, centre section of chancel south wall.

westernmost point a sole surviving fine-grained sandstone floor flag, but there was no information on the relationship between this flagged floor in the western part of the chapel and the concrete which paved its eastern area. Below the chapel floor level the trench revealed the chamfered plinth above the foundation courses. At the west end this mirrored the scale of the chamfer on the south side of the chancel, but east of the

Fig. 5. Whorlton Old Holy Cross church: remains of the north-west corner of the nave after removal of overgrowth and rubble, and before consolidation, 1997.

nineteenth-century tomb recess the chamfer had taken on the scale of the plinth seen along the east wall.

At the west end of the chancel north wall a blocked square-headed doorway is clearly visible in the fabric of the wall. Excavation of the drainage trench revealed that the door had been a secondary feature, and had been cut into the wall to a level which entailed breaking the chamfered plinth (Fig. 6). This would appear to have led from the interior of the chancel into a structure on the exterior which once had a floor level below that of the chancel, and, indeed, the chantry chapel. Further information on this door was recovered during observation of the fabric of the chancel wall, described below, although the nature of the area into which it led is unclear.

Adjacent to this doorway another blocked square-headed doorway was directly related to the floor levels of the former chantry chapel. This appears to have given access from the chancel into the chantry chapel.

No human bones were encountered during the excavation of the drain along the north side of the chancel wall.

The drainage trench continued round the nineteenth-century construction enclosing the Meynell monument, extending around the buttresses at the north-east corner of the chancel. Here the east wall of the former chantry chapel extended from the line of the east wall of the chancel, although it was not possible to examine its relationship with the chancel. It was 0.92 m in thickness.

The excavation of the drainage trench along the east wall of the chancel revealed it to be of one build, although even here, where the external ground level was at its lowest, the base of the wall was not revealed. Evidence that this wall was not the original one, or that there had been a change of plan during its construction, was revealed by the use of two foundation-course stones with chamfered edges which were redundant in their

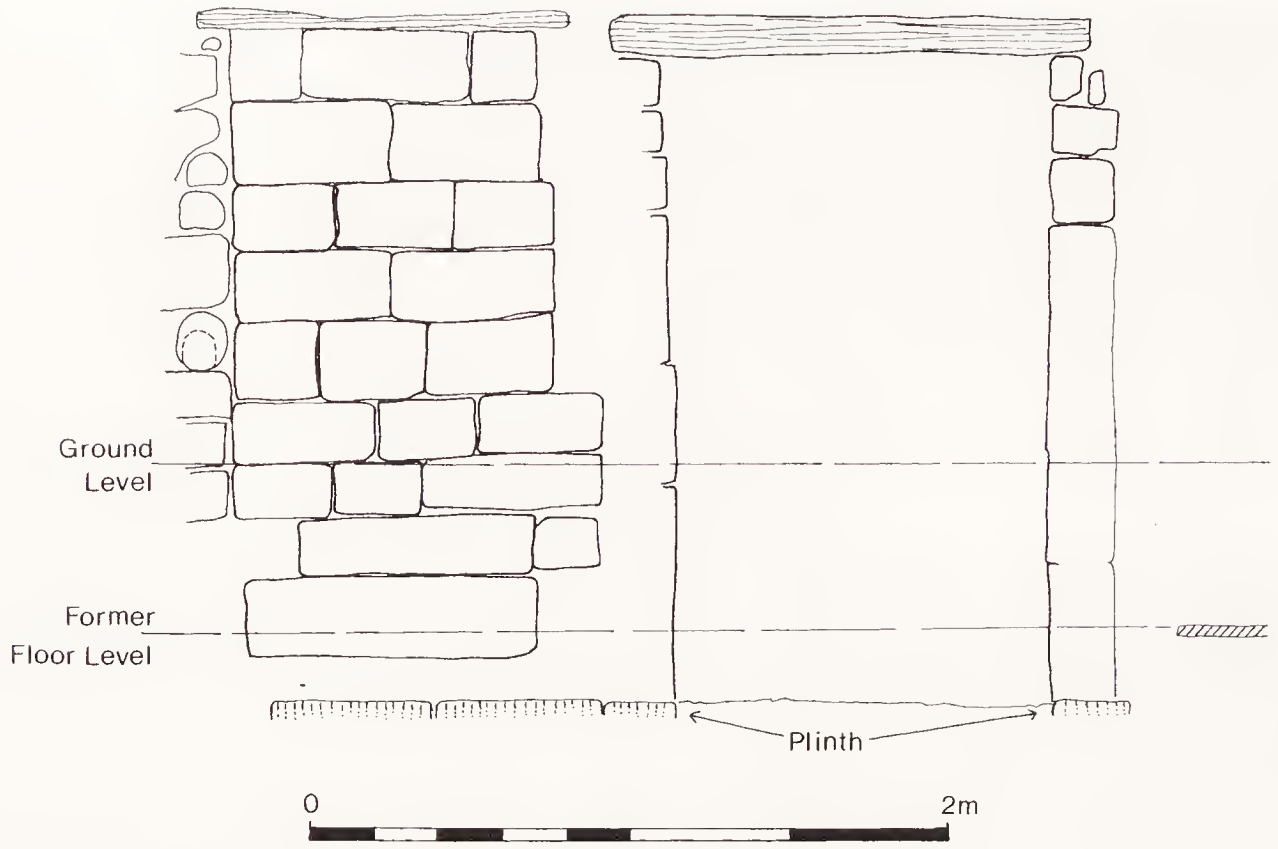

Fig. 6. Chancel north wall, showing the late-blocked door to the chantry chapel (left), and the blocked doorway cutting the chamfered plinth (right).

eventual location. Observation of the above-ground fabric provided further information on the construction sequence, see the discussion of the chancel south-east corner buttresses, below. The east wall had been provided with a chamfered plinth which is of the same style as that seen along the east end of its south wall. Dislocated by the buttress which replaced the nineteenth-century demolition of the chantry chapel, a similar style of chamfered plinth was noted along the eastern end of the chancel north wall. A few isolated discoveries of human bone were made during the excavation of the drainage trench along the chancel east wall.

On the south side of the chancel excavation of the drainage trench revealed the plinth with narrow chamfer which appears to have accompanied the construction of the earliest period of the church. This extended eastwards as far as the blocked doorway, where it was replaced by a stepped foundation which was clearly later (Fig. 7). The stepped foundation extended to the buttress in the eastern central part of the chancel wall, whereupon a chamfered plinth was re-instated. This plinth, however, had an extended chamfer which continued around the south-east corner buttress and along the east wall.

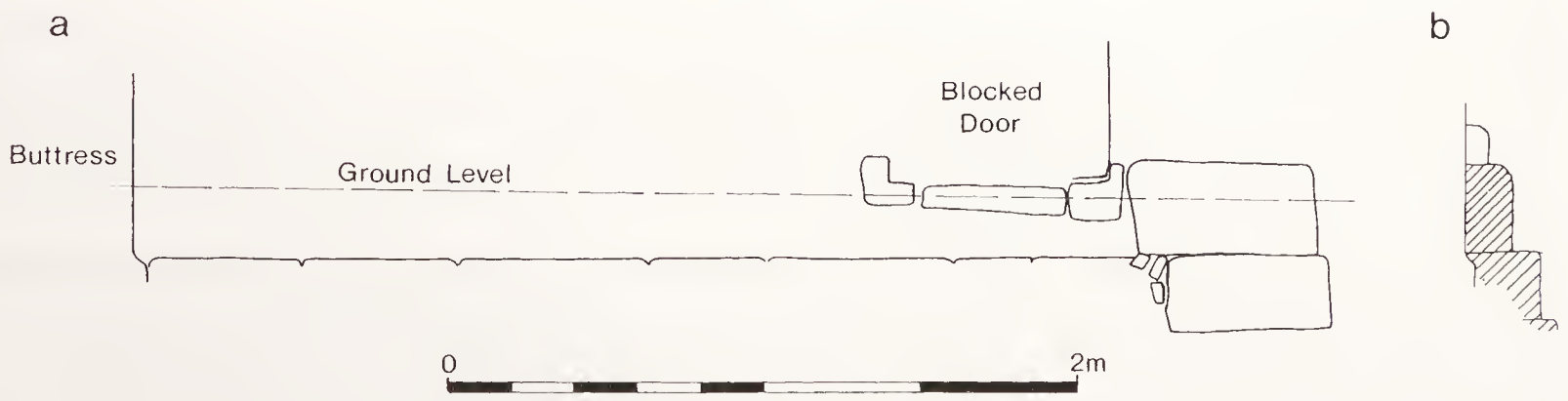

Fig. 7. Chancel south wall: detail of door threshold (a), and chamfered course (b).

Extending drains and soakaways

A soakaway, around 1.20 m square and with a maximum depth of 0.80 m was excavated 6.25 m north of the west end of the chancel (Fig. 1, B). Underlying the dark topsoil level a mixed gravel deposit is thought to be natural in origin and no archaeological features were noted. The excavation of two drainage trenches linking this soakaway to the French drain on the north side of the chancel recovered substantial evidence for the former chantry chapel.

A trench, of average width 0.24 m, running from the soakaway to the north-east corner of the chancel revealed a concrete floor 0.07 m below the current ground surface. This extended from the chancel wall northwards to the robber trench of a former wall, the lowermost foundation course of which comprised substantial stone slabs with an average width of 1 m. This is interpreted as the north wall of the former chantry chapel (Fig. 1, A), which can now be shown to have had an internal width of almost 3 m. Excavation of the robber trench fill recovered a few fragments of glass, two of which were modern, but four appear to be medieval. Drainage requirements entailed the cutting of the concrete floor, which proved to be 80–90 mm thick, founded on a mixed rubble level, while a single large slab from the wall foundation was also removed.

A second trench 0.24 m wide was excavated to link the soakaway with the western end of the chancel drain (Fig. 8). In this area the concrete floor was not encountered, and instead mixed rubble deposits were found. The trench appeared to run immediately to the north of a poorly constructed wall, 0.45 m wide, one of whose constituent dressed stones had been lime-washed on its north face. The limited depth and width of the drainage trench did not permit a full archaeological interpretation of these deposits.

This trench also crossed the lower course of the chantry chapel north wall and it was noted that the upper surface of a large slab, which intruded into the path of the drain, bore decoration. Cleaning revealed a rough interlace pattern on the stone, which, after recording, was lifted. The adjoining slab to the east proved to be the joining piece, which was also lifted. The two pieces had been placed contiguously in the foundation, but, as the top part had been placed so as to invert the pattern, it is clear that the significance of the stone was no longer regarded at the time of its deposition.

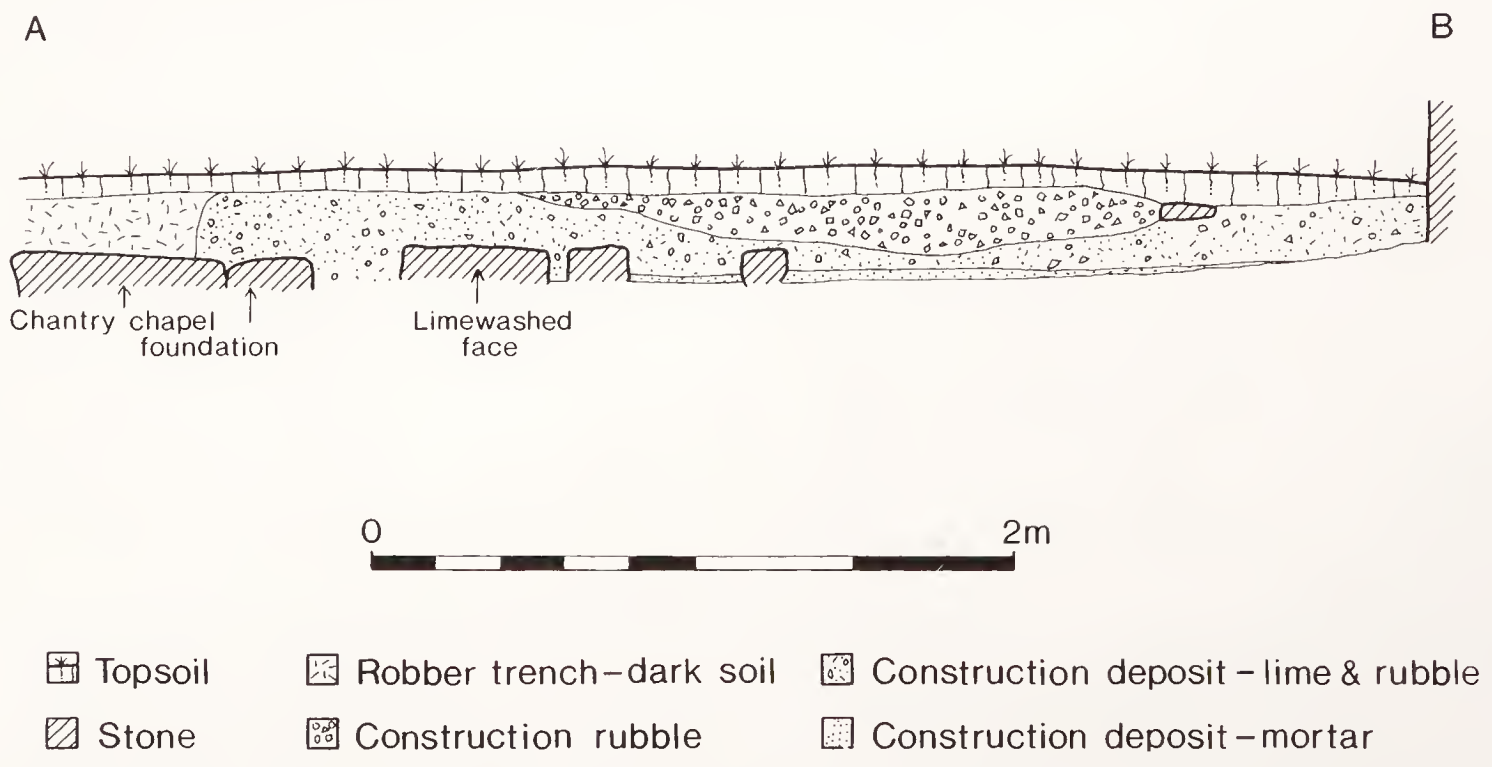

Fig. 8. Section along drainage trench from chancel north wall across former chantry chapel to northern soakaway.

In contrast to the excavation of drainage trenches on the south side of the chancel, no human bones were noted during these excavations.

On the south side of the chancel a soakaway, around 1 m square was excavated at right angles to the south-east corner of the chancel and 13 m distant from it, avoiding marked burials and not encountering any skeletal remains. Below the 0.30 m of topsoil only the gravel subsoil was encountered. A drainage trench linking the soakaway to the chancel French drain and fall pipe crossed the location of a row of nineteenth-century burials but did not interfere with them as it did not exceed 0.34 m in depth. A number of disarticulated bones from most parts of the human skeleton were discovered during the excavation of this trench.

Buttresses to the chancel south-east corner

The gabled buttresses to the south and east of the south-east corner of the chancel were seen to be parted from the fabric of the main building. Excavation of the drainage trench around these buttresses revealed that the south buttress appeared to have been placed upon the lowest course of an earlier buttress (Fig. 9). The stones forming the chamfered plinth of the former construction stood completely free of the later construction. In style and size these chamfered stones were similar to the chamfered plinth seen along the western part of the chancel. These few stones have been left in position. A few stones set against the base of the west buttress may once have formed the foundation of a slight rubble wall extending to the east, although for what purpose is unclear — the existence of a nineteenth-century tombstone allowed only the minimal insertion of the drain at this point.

In order to assess the structural quality of this corner of the chancel the existing east buttress was dismantled, showing that the south and east buttresses were built as one with the existing east wall of the chancel.

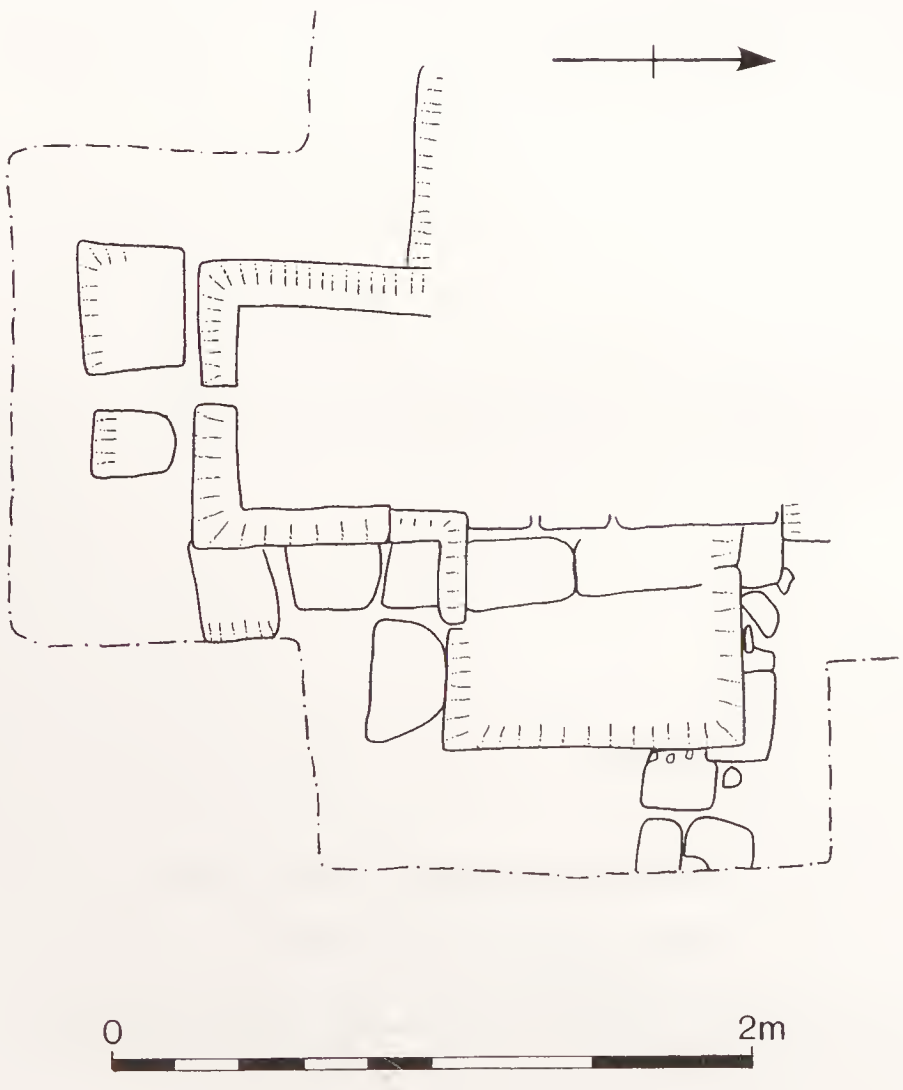

Fig. 9. Chancel south-east buttress: below ground details.

Evidence from the above-ground fabric of the chancel

Repairs to the buttresses at the south-east corner of the chancel have been noted above. These show that the buttresses were an integral part of the eastern end of the chancel south wall and the east wall of the church. The buttress on the north wall at the north-east corner was constructed following the demolition of the chantry chapel, so it has not been possible to see any evidence for the original relationship between chancel and chapel.

Surface finish suggests that a considerable portion of centre part of the chancel south wall has been rebuilt, and this correlates with the section of stepped foundation. The interior detail of the blocked south doorway, immediately adjacent to the extended west window, was revealed by plaster removal.

Removal of plaster from the interior suggests that fragments of older masonry survive within the rebuilt external buttress on the chancel south wall. Also in this internal sector, the scar of a previous altar rail was observed, 0.32 m to the west of the existing one; it was 100 mm wide.

In the chancel north wall removal of plaster revealed the blocked square-headed doorway leading from the chancel into the former chantry chapel; as on the exterior, this had been filled with stones bearing typical nineteenth-century herring-bone tooling.

At the east end of the chancel exterior north wall a blocked square-headed entry had a decayed wooded lintel. Removal of the lintel prior to infilling and pointing allowed the recording of a deeply splayed recess in which a pointed arch for a door was set low in the wall (Fig. 10). Removal of the interior plaster provided further detail of this door, which has a trefoil head in thirteenth-century style. In the lower part of the east jamb a slot has been cut.

Raking out of the mortar joints in the external face of the chancel east wall revealed the put-log holes on either side of the window at its head and foot, with a further pair of holes set lower in the wall.

OLD HOLY CROSS CHURCH: THE STRUCTURAL SEQUENCE (Fig. 11)

The structural sequence proposed here is based on observation of the standing fabric and those parts of the buried fabric revealed by the current repair work, together with consideration of the surviving documentary evidence. Very limited archaeological excavation might confirm the location of the north and south walls of the nave, and the west

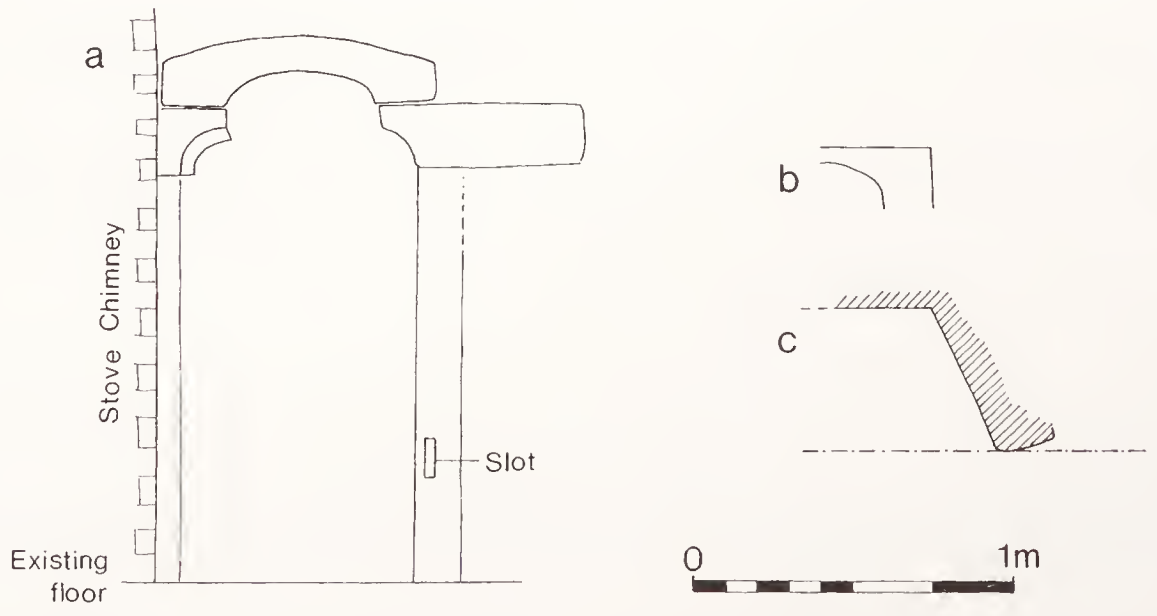

Fig. 10. Chancel north wall: a, detail of blocked door at west end of interior; b, detail of doorhead visible in external wall, c, plan of door opening from exterior (all detail now hidden beneath facing stone and plaster).

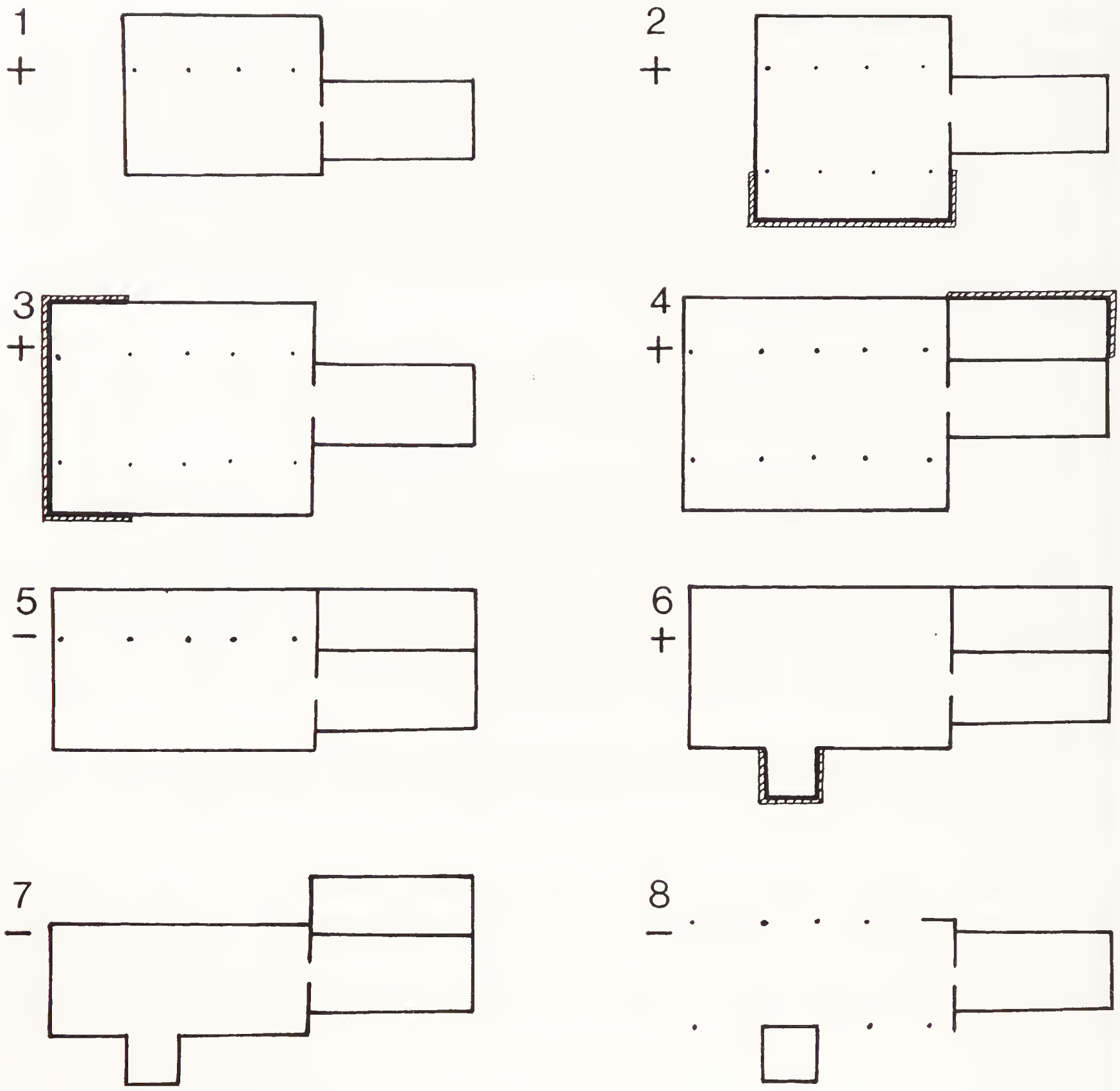

Fig. 11. Whorlton Old Holy Cross Church: suggested development of the structure.

wall of the chantry chapel. More extensive work would, however, be required to elucidate the detailed structural history of the chancel and the west end of the nave.

Phase 1: Construction of nave and chancel

The initial phases of nave and chancel were of one construction, linked by the chancel arch. The chancel arch, with star ornament on the external hood mould, suggests that the church was built during the latter part of the eleventh century. The decorated grave slab, discovered re-used, has lozenge decoration which is stylistically reminiscent of the decoration on the chancel arch hood mould, and may also be of late eleventh-century date.

It has been suggested that the chancel was initially shorter (Lofthouse 1899, 13). A shorter chancel would have been the usual twelfth-century practice in the area (pers. comm. Peter Ryder), and it may be that this was the case here. However, the chancel

was extended at a date sufficiently early to use the short chamfer foundation course of the earliest church, rather than the longer style used for the south aisle addition. The matter can only be determined by excavation in the interior of the chancel.

The north aisle with three bays may have been built in the first phase, or have been a fairly early addition, as suggested by Fowler (1902, 242). The archaeological investigations detailed here confirm that the south aisle was a later addition.

Phase 2: Construction of the nave south aisle

The east wall of the nave was extended to the south, a new south wall was constructed and the existing south wall pierced to create an arcade matching that on the north side.

This major phase of work appears to have been undertaken at the beginning of the thirteenth century. The east end of the chancel north wall may have pierced around this time to allow access to a chapel or crypt which had a floor considerably lower than the nave or later chantry chapel. There is other evidence for a structure on the north side of the chancel at this date: doorways at ground and first floor level are let into the surviving northern stub of the nave east wall. These would seem to be what Fowler saw as evidence for the existence of a rood loft (1892, 227; 1902, 242), but they pass through the wall and presumably gave access to a structure on the north side of the chancel. It is not clear when these doors were blocked, but a possible occasion would be the construction of the chantry chapel, when the chancel north wall door was blocked and access provided to the chapel through a door a little further east in the chancel north wall.

It was probably also at or around this time that the east wall of the chancel was rebuilt, either on its original line or extended to the east, to include a narrow three-light window, the vertical bars of which had centres 0.51 m apart.

Phase 3: Extension of the nave westwards

The nave was extended by one bay to the west, probably after the construction of the north and south aisles.

Early thirteenth-century in style, the westernmost bay of the north aisle is earlier than the corresponding bay in the south aisle, which is usually suggested (Page 1923, 316) to have been rebuilt at a later date.

The east wall and eastern ends of the chancel north and south walls were probably rebuilt at this time, a suggestion which is supported by the fact that the chamfered plinth at the west end of the nave matches that provided at the east end of the chancel. The vertical bars and transom of the existing east window were re-used in a new and wider light with vertical bars which now had centres 0.87 m apart. Probably also in this phase the chancel walls were raised by two courses of stone which match those of the east wall; this, and widening of the east window, had the effect of pushing the window slightly off-centre to the north.

The north wall of the chancel shows evidence of a yet further phase of raising, which was presumably reduced somewhat by Wyatt's requirements for a slate roof, noted in Phase 8.

Phase 4: Erection of the chantry chapel

The doorway at the east end of the chancel north wall was blocked and any existing structure on the north side of the chancel was demolished or altered to encompass a chapel, referred to in the early nineteenth century as the Lady Porch. The presence of a low earthwork mound running the length of the chancel, continuing over the site of the nave north aisle, suggests that the chapel extended along the length of the chancel north wall. The substantial size of the structure compared with the adjoining chancel is

brought out in a note from the vicar in connection with repairs proposed, and probably undertaken, in 1810, detailed under Phase 7, below: 'I have long expected ye roof of ye Lady Porch as it is called, which is nearly half, or at least two-fifths of ye chancel, to fall in.' Wyatt's specification of works required for the demolition of the chapel in 1875 referred to two two-light windows, presumably in the north wall, and a three-light window in the east wall (NYRO ZJX 7/180/16). The larger window and one of the small ones is built into the south wall of the chancel of the church he designed for Swainby, while part of a two-light window in the north wall is also old fabric.

This construction episode is assigned to the fifteenth century. If it had not already been blocked, the surviving Norman window in the chancel north wall was perhaps infilled at this time. This phase would have represented the greatest extent of the church, although some diminution of resources is suggested by the re-use of the eleventh-century grave slab in the chapel foundation.

Phase 5: Demolition of the south aisle

The existing south wall of the nave was demolished and the arcades were infilled.

This took place in the fifteenth century, and may have been directly associated with the construction of the tower. It is worth noting that the south arcade arches stand somewhat higher than those of the north arcade. Lofthouse suggested that these had been raised (1899, 13), and this is supported by the fact that their heads now match in height the heads of the later fifteenth-century west bay. The operation could only have taken place before the tower was built, as its fabric surrounds the arcade remains. Interestingly, Murrays *Handbook* states [some 50 years ago] 'The piers were re-built, but less high than before, and hence the difference in the height of the arches on either side' (1882, 214). This seems inherently unlikely, since Murrays is referring to the demolition of the north wall: its consolidation on the line of the arcade would hardly have been preceded by the remodelling of piers and arches which were to be hidden.

A dated shield attests the reconstruction, around 1593, of the eastern upper part of the chancel south wall and the insertion of a new, square-headed, window.

In 1722 the upper part of the tower was repaired and a new roof provided which incorporated stonework from the north gable of the Meynell tomb (Fowler 1902, 247).

Phase 6: Construction of the tower

A tower was constructed against the third bay in the former south arcade of the nave, probably also in the fifteenth century. This served as an entrance porch and may have replaced one set against the demolished south wall.

The absence of roof scars on the east and west sides of the tower shows the south aisle did not exist when it was constructed, probably also in the fifteenth century. The incorporation of fragments of grave slabs in the tower masonry echoes the re-use of the early grave slab in the foundation of the chantry chapel and suggests that building resources were limited.

Phase 7: Demolition of the north aisle

According to Murrays *Handbook* 'the north aisle, and the adjoining piers, fell some 50 years ago' (1882, 214); however, the nineteenth-century directories were slow to update topographic and historical information and earlier editions use the same form of words, placing the destruction probably within the first quarter of the century. The absence of graves in this area may reflect unwillingness to place burials in this area (Fowler 1902, 242), but it also supports a relatively late destruction date for the north aisle. Graves are also absent from the site of the chantry chapel, which is known to have survived until

relatively recently, while, by contrast, the site of the former south aisle has a concentration of headstones.

In 1810 a faculty was drawn up to allow the renewal of the church roof and to rebuild the north side of the church and to rebuild the west end 11 feet inside the then existing line (NYRO ZJX 7/61/27), effectively reducing the nave to its twelfth-century length. It is not clear that this relates to the collapse or demolition of the north wall of the church, but this seems likely, since the elapse of a fair amount of time would have been needed for the north aisle arcade to be 'discovered' during the alterations of 1875 — although, as noted below (Appendix), the embedded arcading can be clearly seen in a sole surviving pre-1875 photograph.

The parochial accounts indicate that the churchyard wall was built at this time, probably replacing a bank and hedge.

Phase 8: Removal of the arcade infilling, demolition of chantry chapel, repair of the chancel

Decline of the church continued, apparently matching the decline in support of the established Church, underlined in a 1875 letter from the vicar to the Ailesbury Estate: 'Things may be better perhaps, when the church stands in the village, but at present the Chapels have it all their own way and one feels that matters are very hopeless' (NYRO ZJX 7/180/4).

The conversion of the chancel into a mortuary chapel was initially intended to be accompanied by the demolition of the whole of the nave and its attached tower. The realisation that the nave walls contained the arcading for the former aisles brought about a change of plan, and, instead, the infilling of the arcades was removed, the walls above were capped and repairs undertaken to the tower (see Appendix). The south aisle arcade was topped by the heads of three-light and two-light windows, formerly let into the blocking of the arcade below, as seen in a photograph taken before the remodelling of 1875 (Hartley 1978, 4).

The chantry chapel was demolished, however, according to plan. Windows in its north side, evidenced by fragments of glass in the wall robber trench, were required to be placed in the chancel of the new church in Swainby (NYRO ZJX 7/180/16). The entrance to the chapel from the chancel was blocked and a new buttress constructed where the chapel had been removed at the east corner of the chancel north wall. The chancel north wall was reconstructed around the Meynell monument and a new wall built inside the west wall of the nave.

According to Wyatt's specifications, the chancel north and south walls were reduced, and the east end raised, to permit the construction of a tiled roof (ZJX 7/180/23).

The path from the western end of the nave was built as part of the reconstruction works specified in 1875. (ZJX 7/180/19). The path lined with yew trees which leads from the road to the north to the west end of the nave was probably also established at this time.

In 1891 the tower was re-roofed, the west gable over the chancel arch reconstructed, and an extended buttress built against the north side of the chancel arch (Fowler 1902, 247).

The churchyard was extended to the west in 1907, and again in 1977 (Hartley 1978, 13).

Finds

A few finds were made during the course of the excavation of the drain trenches, the most notable being a decorated grave cover of later eleventh-century date. The grave cover is now in the chancel, while the other finds detailed below are in the care of the Parochial Church Council.

Roof tile

Part of a rectangular roof tile, original dimensions unknown but from 8–17 mm thick, with a single hole drilled for fixing. Fine sandstone, probably from the nearby hills.

Sculptured stone grave slab by Peter Ryder

Two joining parts of a substantial piece of sculptured stonework, of local sandstone, formed part of the foundation course of the north wall of the chantry chapel (Figs. 12 and 13). Decorated with a relief design, the central shaft is flanked by a broad chevron with an incised medial line, within a raised border. Damage at the ends obscures how the design was finished, but it does not seem that there was a conventional cross head.

A number of parallels can be cited: there is a small slab at Christ Church, Westerdale, with a similar but not identical pattern. A full size one lying in the churchyard at Kildale bears an incised pattern of a cross with a stylised head, flanked by a running lozenge pattern. There are other examples in Teesdale: slabs in the church porches at Gainford and Forcett both show a combination of chevron and lozenge patterns, and another, now lost, was for some years in the castle at Barnard Castle. At High Coniscliffe a very interesting small slab has three carved panels, one with a cross shaft flanked by a chevron exactly as on the Whorlton slab, one with a pair of shears, and a third with interlace very much in the pre-Conquest tradition. In Cumbria a very similar running chevron pattern can be seen on a slab at Cross Canonby. For the Barnard Castle, High Coniscliffe and Gainford stones see Ryder 1985.

This is a typical slab of what has been termed the Saxo-Norman overlap; running chevron pattern might be seen as a dimly remembered derivant of the interlace on earlier stones, and also as a precursor of the running foliate or scroll patterns on later medieval cross slabs such as those from Bolton on Swale, Ellerton Priory, Middleton Tyas and Scruton (Ryder 1986). All these stones are probably of later eleventh- or even twelfth-century date: there is evidence that pre-Conquest influences, in both architectural and monumental sculpture, persisted for a generation or more beyond the political changes of 1066.

Glass

Six fragments of window glass were recovered from the robber trench of the chantry north wall in its centre section. Four of the pieces have iridescent surfaces which are flaking heavily, while two are less decomposed. These appear to be clear glass.

Lead

Strip of lead bent to bind three other pieces, the binding piece being the largest, 130 mm long, average width 43 mm and varying from 2 to 4 mm thick. Presumably former roofing material. From drainage trench on south side of chancel.

Late or post-medieval pottery

Rim sherd of a plate, plain exterior with buff-orange surface, interior with greenish tinged clear glaze over a buff-pink surface. Applied red clay decoration on the rim.

Two sherds of the base of a pan, surfaces and fabric brownish orange, the interior clear-glazed. The fabric has quartz sand grits and micaceous dust.

The pan could be of relatively recent date, perhaps even nineteenth century, and thus potentially from a number of local or regional production sites, the plate is of late sixteenth or early seventeenth-century style and is similar to the products of kilns known from Osmotherley (Sherlock 1990, 94). All the pottery is from the drainage trench along the western part of the south chancel wall.

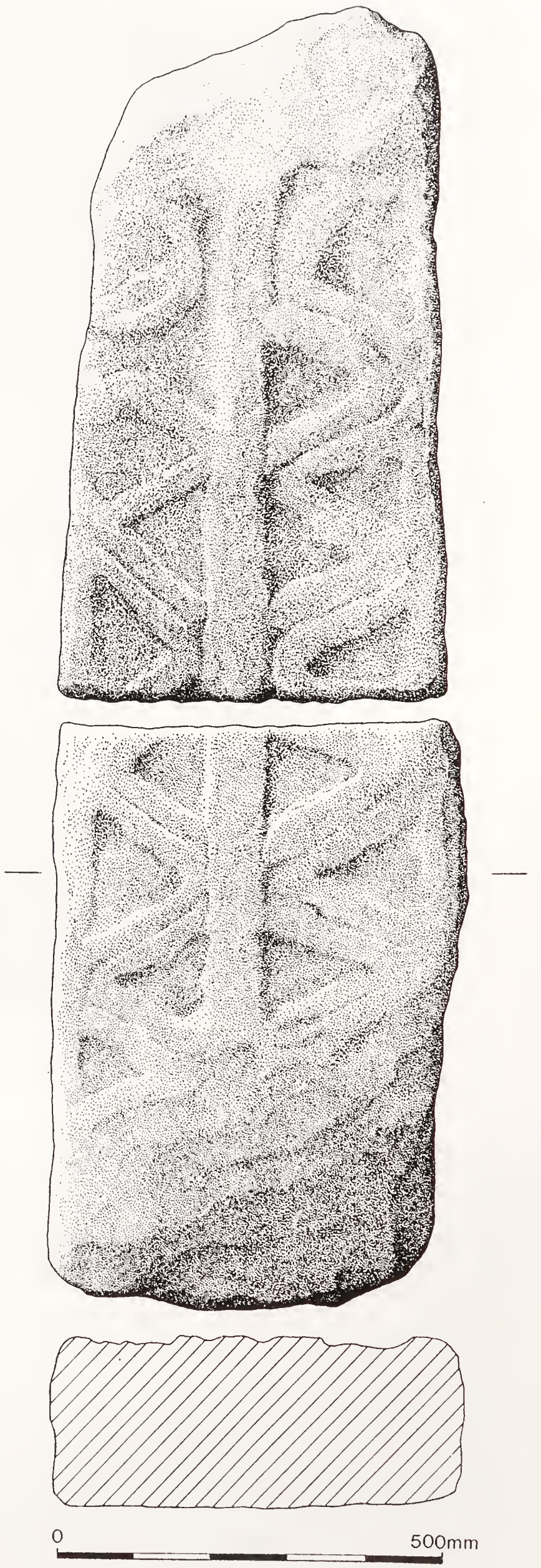

Fig. 12. Late eleventh-century grave cover from foundation of chantry chapel north wall.

Fig. 13. Whorlton Old Holy Cross church: Grave cover found during drain excavation, 1997.

Recent pottery

Parts of two salt-glazed jars, one 130 mm high, 90 mm in diameter, with corrugated external surface, the other 65 mm tall, 58 mm in diameter, a miniature of the first. These are probably ink jars of nineteenth- or early twentieth-century date, from excavations along the north wall of the chancel.

Part of a tile, or brick, reddish-orange fabric with micaceous clays, from excavations along the north wall of the chancel.

Human bones

During June and July 1996 trenches for French drains were excavated around the south, east and north walls of the chancel, with further trenches leading to soakaways to the north and south of the chancel. The trenches extended to a depth of around 60 cm below present ground surface at the west end of the chancel, reducing to an average of 40 cm

at the east end. The soakaway trench on the north side was therefore 60 cm deep at most, while that on the south no more than 40 cm. No *in situ* burials were disturbed during this excavation work, but a number of individual bones and bone fragments were recovered during the digging. Findspots were mainly restricted to the area of the broken stub of the south-east corner of the nave and the drain trench extending south from the south-east corner of the chancel. Few bones were discovered along the course of the trench around the chancel, and these were mostly at the east end. No bones were recovered from the drainage trench leading to the soakaway on the north side of the chancel.

The bone assemblage is too fragmentary and disjointed (literally) to merit specialist examination and they have been reburied just outside the presumed location of the north wall of the nave.

ACKNOWLEDGEMENTS

The co-operation of the building contractor, Peter Martin of York, and his team is gratefully acknowledged. The archaeological interpretation has benefitted from the keen enthusiasm of Carol and Robin Cook, Joan Hartley, and the vicar, John Ford. Richard Bailey, Lawrence Butler, and the late Jim Lang commented on the cross slab. I am grateful to Peter Ryder for additional comment on the development of the church and for information on the cross slab and the architectural fragments incorporated in the tower, and should like to thank Richard Harper for his assistance with information on nineteenth-century architects.

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APPENDIX

ARCHITECTURAL FRAGMENTS: DOCUMENTARY EVIDENCE FOR THE REMODELLING OF WHORLTON OLD HOLY CROSS CHURCH

Further information on the structure of Whorlton church is contained in the Ailesbury Estate Papers (North Yorkshire Record office), transcriptions of parts of which have been kindly provided by Joan Hartley. The Ailesbury estate commissioned the prolific architect,

Thomas Henry Wyatt (1807–1880), to design the new church of Swainby and, apparently at the same time, to draw up the specification for the remodelling of Whorlton church so that the chancel could be put into good enough state to continue in use as a mortuary chapel. The need for a new church was brought about not just by the poor state of the old structure, but because the settlement at Whorlton had become increasing depopulated and non-conformist chapels were serving the needs of a community which was by now centred in Swainby, 0.5 km distant. The retention of the old church was required not just for sentimental reasons, but because the maintenance of its churchyard considerably reduced the amount of land needed for the new church. It was thus a remarkable combination of factors which thus led to the construction of a new church and the survival of a large part of the old one. Although prolific, Wyatt was a competent rather than a great architect whose large practice had designed a considerable number of new churches as well as undertaking many remodelling contracts (Robinson 1979, 218–26): the commission to build Swainby church came late in his professional life.

The correspondence throws interesting light on the architect's interest in the architectural history of the old church and the development of the remodelling scheme following the discovery of the nave arcading embedded in the later walls. There is also information, mostly incidental, on the then surviving chantry chapel. Interesting sidelights are thrown on the developing relationship between the architect and his client, and on the dealing between the estate and local contractors. It would seem that the vicar was more interested in the new church than the old, in that the photographic record suggested by Wyatt seems never to have been undertaken, while Canon Atkinson, the noted local antiquarian, was informed of the remodelling that led to the discovery of the old arcading only after the event.

Letter from Revd. Wm Deason to Lord Ailesbury's agent, 28.2.1810

The 1810 faculty to allow the renewal of the church roof and to rebuild the north side of the church and to rebuild the west end 11 ft inside the then existing line (NYRO ZJX 7/61/27), is supported by this letter, which explains the work and requests permission to quarry stone from Lythe (presumable Live) Moor.

As discussed above, this would appear to be the occasion on which the old north wall was demolished and the arcading encapsulated within a rebuilt north wall.

Letter from Revd Arthur Cumming to T. Maughan at the Ailesbury Estate (ZJX 7/180/4)

I heard from Lord Ailesbury only a few weeks ago, telling me that he had decided on having Mr Wyatt as the architect ... he had not liked any of Mr Fowler Jones' plans and ... he thought it would be best to have a London man.
I shall indeed be glad when the new church is commenced, for I feel I can do but little in the parish until we have one. Things may be better perhaps, when the church stands in the village, but at present the Chapels have it all their own way and one feels that matters are very hopeless.

Slaters *Directory of Yorkshire* (1873), lists Fowler Jones as an architect with a practice at 3 Low Ousegate, York. Whorlton was a relatively unusual north of England commission for Wyatt, an architect whose work is concentrated in the West Country and Wales, and no doubt derived from his extensive social connections (Robinson 1979, 218).

Letter from Lord Ailesbury to T. Maughan, 3.4. 1875 (ZJX 7/180/5)

With this I return a plan of Whorlton village ... will help us to make the first tracing of the ground for the proposed new church. I understand it is proposed to reserve the ground near the present old church as a cemetery leaving a portion of the old church (probably the chancel) as a mortuary

chapel. If such should be the case the land about to be conveyed for the new church need not be much ...

Letter from T. H. Wyatt to T. Maughan, 3.4.1875 (ZJX 7/180/6)

I have been requested by Lord Ailesbury to consult you as to the best way of dealing with the old church at Whorlton, taking it down and removing such of the old materials as are available again to the new site near the bridge ...
The lead is valuable and I think the best way of disposing with that would be to advertise it to be sold by tender and apply to plumbers in Middlesbrough or Stockton for offers, the purchasers taking it off and removing it at their own cost and risk.
The bells should be preserved — Lord Ailesbury thought that Robert Nelson and James Temple might give a joint tender for taking down the tower, nave and south aisle and perhaps the north (chancel arch and chapel) leaving the existing chancel and the old Norman arch as a mortuary chapel. ... We thought it very desirable that Robert Nelson (as mason) should be appointed with Temple in this contract as he would know what stones would be worth moving and how to take them down ...
Would these two be competent to give a contract for building the shell of the church having once done similar work elsewhere?

The question of the value of the lead, and how best to dispose of it, is raised on several occasions: it would seem that Wyatt's advice was not fully taken. The initial intention to take down the tower was reversed following the discovery of the former arcading encapsulated within the surviving nave walls. Nelson builders are still operating in Swainby.

Letter from S. A. Croft and Sons, Middleham, to Mr T. Maughan, April 1875 (ZJX 7/180/7)

We have carefully examined the old lead on Swainby church and will give 183.0.0, this includes taking off and carriage.

It is not clear why an approach seems to have been made to Croft at Middleham, which is considerably more distant than Middlesbrough or Stockton, but there may well have been a reluctance to deal with the developing industrial towns.

Letter from T. H. Wyatt to T. Maughan, 4.5.1875 (ZJX 7/180/8)

I saw Lord Ailesbury yesterday and he thought it would be a good plan to get an estimate from R. Nelson and J. Temple for taking down the old church and carting such of the old materials to the new site as would be useful in the new church. ... I would send a short description of what I think it would be well to move ...
Lord Ailesbury seemed to think that the comment given by the archbishop in his letter to Mr Cumming was quite sufficient to justify our pulling down without wasting money on a faculty.
I suggested in my letter to Lord Ailesbury that before pulling down I thought there ought to be two or three good photographs taken of the old church. This would be right and interesting both from an antiquarian and historical point of view. He quite concurred. Is there anyone in the district (nearer than York) who could do this well?

Wyatt was to return to the importance of acquiring a photographic record in his following letter, but this does not seem to have been done, as J. C. Fowler, vicar of Whorlton from 1890 until 1917, a historian and leading member of the Cleveland Naturalists Field Club, did not publish any pre-1877 views of the church in his note on the church (1892) or his survey of the parish (1909a). However, a photograph of the church from the south-east survives (published in Hartley 1978, 4) on a *carte de visite* produced by a Redcar photographer who is listed in local directories from 1865, and may have been in business somewhat earlier. In this the blocked arcading can clearly be

seen, so the suspicion must be that the photograph was taken at an early stage of the re-modelling, probably during September 1875: if earlier it would be hard to explain how the arcading came as a discovery which was to change the course of the consolidation work.

Letter from T. H. Wyatt to T. Maughan, 14.5.1875 (ZJX 7/180/13)

Herewith I send you a general specification applying to the removal of the old church. Will you be good enough to look it over and make any additional and alterations you think desirable and then forward it to Nelson and Temple ... It should be clearly understood that they take down such old stone and paving as Nelson (who is a mason and should know what stone will work again) believes to be useful and worth the carriage. I have added a PS as to the removal of any grave stones which are in the way of pulling down and should be replaced afterwards. ... It would be well worthwhile to have very good photos taken for I have no doubt that the parishioners would like some, and I have seen some of Mr Austin Clarke's of Ripon that are very good.

Specification of works required to be done in taking down the greater part of the present church and removing the materials in preparation for the building of a new church in a more accessible site, according to the directions of Thomas Henry Wyatt, architect. London, May 1875 (ZJX 7/180/16)

The following instructions apply to the several parts of the building except the chancel, this to remain for a mortuary chapel. Carefully strip off the old lead on the roofs and roll it so as to be conveniently removed, cart away as directed.
Take off all the rafters and other timbers of roof parts of the building and remove from the site. None will be considered fit for use in the new church. Form a rough but strongly boarded partition on the west side of chancel arch with a door for access with a proper lock and key. Such of the old rafters as suitable, to be used and the panelling of old pews may be used to cover it so as not to require any new materials. Carefully lower the present bells and remove to a place of safety as will be directed. The wheels, framing and tackle need not be preserved. Clear out all the old fittings of every kind and dispose according to directions.
The bowl of the ancient font to be preserved and placed in safety either inside the chancel or elsewhere.
Take down all the monuments in the church or upon the walls and carefully refix them in the chancel.
Take up any gravestones or ledgers now in the pavement and preserve or relay in the same position.
No memorials of any kind to be removed from the churchyard.
Take out all glazing, saddlebars etc and deposit as directed.
In pulling down the walls the following windows are to be taken out, stone by stone, and marked or numbered so that they may be rebuilt in the new church exactly as at present they exist, viz:

> Two decorated windows in south wall of chancel, the 3-light east windows of north chancel aisle and two 2-light windows of early date in the side wall.

The whole of the walls to be taken down to a level 6′ above the ground line (inside the building), the materials to be cleaned and sorted, such of them as are suitable for re-use in the new church to be removed from there to the intended site and stacked in convenient positions thereon. In cleaning off old mortar etc it is not intended that the old weathered face should be removed. All the rubbish and rubble to be carted away. No turfing or planting to be included in the estimate.
If in pulling down any moulded stones or other features of interest are discovered, they are to be carefully kept apart, and if any coins, fragments of painted glass or tiles are found they are to be handed over to the rector.
A new rough stone wall 15′ thick in mortar is to be built round a part of the monument on the north side of the chancel which projects into the aisle. The wall to be carried up to sufficient height and to have a lean-to roof of old rafters and stout boarding or slates to exclude the weather until it is decided how the monument shall be permanently enclosed.

The openings in south wall of chancel caused by the removal of two windows to be carefully built up, faced outside and plastered inside. Any gravestone moved must be reset in its proper position. The work to be completed on or before the day of 1875.

As noted above, the site of the chantry chapel is indicated by a low earthwork which extends westwards along the area of the former north aisle. This suggests that Wyatt's instructions were intended to bring the area of the chantry chapel to the same state as the adjoining site of the north aisle.

There appears to have been a change of heart about the two decorated windows in the south wall of the chancel, as they still remain.

Letter from R. Nelson to T. Maughan, 24.5.1975 (ZJX 7/180/13)

I, Robert Nelson, Builder, Swainby, near Northallerton, do hereby engage to do the work named in the specifications for pulling down the old church at Whorlton, carting away the materials etc ... for the sum of two hundred and fifty pounds: the work to be completed in a reasonable time.

Nelson's quotation seems to have been regarded as being on the high side by both architect and estate manager.

Letter from R. Nelson to T. Maughan, 26.7.1875 (ZJX 7/180/17)

I have carefully considered your letter and in reply desire to state that if the specifications are to be strictly adhered to, as labour is very dear and men bad to treat with, I am afraid I should be a loser if I reduced the estimate. Leading is one of the greatest items in our calculation, and certainly there will be a great quantity of rubbish to remove: if this was deposited in some place near the old church it would make a deduction to my calculation.
Another point in the specification which adds considerably to the estimate is the stones have to be carefully taken down and cleaned and some of the windows have to be taken out stone by stone and numbered, etc. Now if I was allowed to take them down to best advantage and not have to clean off the old lime which sometimes takes a great deal of time would also reduce the tender.
At the same time I am willing to undertake the work to be done day by day and paid for accordingly. I have found considerable difficulty in coming to even an approximate estimate of this cost, but am agreeable to undertake the work and keep a careful account of the time, and if at the end of the work I saw that it did not equal my calculations I shall be willing to make every reasonable deduction.

Nelson's suggestion of finding a place near the old church where the rubbish might be deposited does not seem to have been taken up by the estate, although the nearby castle fish pond may well have been in Nelson's mind.

Letter from T. H. Wyatt to T. Maughan, 17.8.1875 (ZJX 7/180/19)

I saw Lord Ailesbury yesterday and promised him I would write to you as to Whorlton church and the best way of dealing with the old chancel so as to adapt it for the purpose of a mortuary chapel, for funeral services.
I venture to think the simplest plan would be to pull down all the rest of the church except what is shewn on the sketch enclosed. I should (as you propose) put in a new open roof covered with slate and dispose of the lead to meet the expenses.
I should wall up the three apertures A, B and C leaving the angles on the inside on the inside protruding (for archaeological interest).
I should remove the present door from porch into church and refix it in the existing chancel arch, or rather under it at D, walling up on each side and I think the nicest way of approaching this chapel would be to form a broad path from the western boundary of the old nave, as without it I don't think you would want my porch.

I should then build a wall at E at the back of the old Meynell monument to protect it when the south chapel is taken down and I think it would be well to leave the portions marked F and G to ensure a good abutment for the Norman arch at D.
With these works and such repair of glazing etc as might be necessary, and introducing a few of the old seats for mourners during the service, you would have a very sufficient mortuary chapel. Surely Nelson and some local carpenter would be able to give a fair estimate for so simple and straightforward a work as this, without calling in a stranger to do it.
Then as regards the old lead on the existing church. The usual way is to invite tenders for it *as it stands*, taking all risk of weight and quality and carriage upon the purchaser and I venture to advise this course be adopted. There is too great a difference between Croft's tenders £183 0*s*. 0*d*. and Shepherd's £132 5*s*. 0*d*. on a material of such value as lead, and B[?]'s tender of £20 a ton delivered at Stockton is too vague ...
... I confess I think Nelson's tender £255 is high but that would depend very much on the quantity of stone he proposes to deliver on the site of new church available for our work ...
If you don't haul the old stone from the existing church to the new one I don't know what you will do with the rubbish and debris from the old one. As regards the new church it will, I fear, never do to let Nelson contract for it, if as Lord Ailesbury says he can never have more than two or three masons working on it. We should none of us live to see it finished and I think you must seek tenders from some experienced and dependable builders, if you can think of three such men it would be better to apply to them for tenders instead of advertising.
As regards laying the *first* stone and preparing for the ceremony and even getting in the foundations, Nelson could surely do that, and he ought to do it on your terms if he expects any more work. If Lord A approves his doing so I would send him down special instructions for that part of the work.

The plan mentioned above does not appear to survive. The accounts show that the lead, in the end, went to Croft at Middleham. The tone of Maughan's correspondence suggests that Wyatt's quip would have been appreciated. Although the path up the old nave was constructed, Wyatt's proposed porch was never built.

Letter to T. H. Wyatt from T. Maughan, 4.10.1875 (ZJX 7/180/22)

Will you send Nelson plan of Whorlton mortuary chapel roof also design for doorway under Norman arch. Now that the old tower has to remain standing can you trust the Revd A. H. Cumming to have a door made from the old arch or window stones ...
Nelson is busy with walling near monument and will soon be ready for roof.

The central part of the south aisle arcade had been integrated with the tower when this was built; the decision to retain the arcading, to judge from the correspondence dates, consequent on work undertaken during September 1875, now required the tower to be retained.

Letter to T. Maughan from T. H. Wyatt, 5.10.1875 (ZJX 7/180/23)

As it will only involve the loss of one post in the day I prefer to send you the drawing for the roof over the chancel at Whorlton. ... If this roof is to be covered with slate instead of lead (as it very well might be) it would be necessary to take off some of the upper part of the side walls so as to get pitch enough for slate and this I think might be done with advantage to the walls; the ridge being kept at its present level so as to preserve the 'Sanctus' bell turret — the gable of the east wall being altered so as to be parallel with the new roof and slightly above it. When I proposed to take down the tower I had intended to use the old doorway from porch into church as the new approach to the chancel under the Norman arch of chancel, and that is what I still think would be the best thing to do, for it will not be necessary now to have two doors in the old tower. I should remove the inner doorway of tower, build it into the new wall under chancel arch and then wall up carefully the old tower doorway ... I should be sorry to attempt anything in the shape of a modern Norman doorway under the *old* Norman arch!
If a south door is wanted beyond that which now exists in south wall, there is the old little one

between vestry and 'lumber room' as it is called on plan. I should wall up the present one into vestry from chancel.

The tower south doorway blocking contains a piece of clay pantile of nineteenth-century type. It is not clear where the 'vestry and lumber room' were located, but no new south door was constructed, while the existing south door was blocked.

Letter from J. Harker to T. Maughan, 8.10.1875 (ZJX 7/180/24)

We have got a drawing of the roof of the old church and it does not say what sort of wood or anythink about it I would be very much oblige is you could give me any information about it as we cannot dou any think untill we dou knaw somethink more.

Letter from T. Maughan to J. Harker, 9.10.1875 (ZJX 7/180/25)

The roof is to be made of best memel Red, clear of sap, dead knots and shakes.
You had better do it as quickly as ever you can as the more activity you show the better chance you will have for the work on the new church.

Letter from A. H. Cumming to Canon Atkinson, 6.10.1875 (no reference)

Our old church is now a complete ruin, we have taken down a great part of it. We found some very nice arches walled up and thickly covered with plaster and whitewashed. We have opened these out so shall probably leave, as they are interesting, together with the tower, which is picturesque. The chancel is to be repaired so will be used for the burial service. The architects of our new church are not Messrs Armfield and Bottomley, but Mr T. H. Wyatt of London. We have already begun the foundations ...

Frank Porter's 1880 *Directory of Stockton, Middlesbrough and Hartlepool* lists Armfield and Bottomley as architects at 1 Zetland Road, Middlesbrough. It is not known what reaction the Canon had to the work at Whorlton Old Holy Cross church: his note on the church at Whorlton appears to have been written around 1872, but provides little information on the church structure (Atkinson 1993, 95).

STAITHS (THE EARLY RIVER JETTIES OF YORK, HULL AND HOWDEN)

By Paul Hughes

Port facilities are known to have been constructed in prehistoric times.[1] During the Roman period real ports existed at both York and London among other places.[2] Strengthened riverbanks for Viking shipping purposes have been unearthed at those places plus Dublin.[3] In Yorkshire and Lincolnshire survive jetties which can conceivably trace their origin back to the previous millennium. These jetties, which are known as staiths, are positively recorded from the fifteenth century continuously into the end of the twentieth century.[4] Staiths are the forerunners of the vast structures to which present shipping of the largest size tie up to and exchange their cargo with.

The function of this paper is to describe some of the surviving records concerning those staiths which lie along the Humber estuary. The description is from the view of a practising Humber pilot rather than that of an historian. It is first necessary to describe the need for the dedicated structure which is a staith. Second are some details of how staiths were constructed; this principally manifests itself as a maintenance record. Pitifully scarce are stories which tell of the reason for the staiths, in other words what cargoes were moved across them. The concluding sections describe the final flowering of the different types of staiths. Here an attempt has been given to suggest the causes of their demise.

Staiths: A Port Type

The Humber estuary, like many others, displays a wide variety of port types. A port is a harbour, a harbour is a safe place, where people can obtain access between ship and shore and where cargo can be loaded or discharged. Natural harbours occur at different places along the coast. Some of these may only permit of their availability at certain stages of the tide. Two opposite types of simple ports are anchorages and places where a ship can be beached.

Beaching is to deliberately let the ship strand upon the shore during a falling tide. It uses the natural tidal range to get the ship in a working proximity to the shore. One of the Humber's Dark Age ports Ravenser, Ravenser Odd[5] or Spurn Point used this type of facility. Its beaching place was as today, flat sand and only a short walk to the land above high water mark. The prehistoric boatyard at North Ferriby conversely used a steep sloping beach of chalk outcrop. Both the sand and chalk provide an amenable surface upon which to work. Inter-tidal areas where the surface is mud or other intractable material do not provide suitable places for successful beaching.

1. E. V. Wright, *The North Ferriby Boats*, National Maritime Museum Monograph No. 23 (1976), p. 31.
2. York Archaeological Trust, *The Waterfronts of York* (1988), p. 3.
3. York Archaeological Trust, *The Waterfronts of York* (1988), p. 3.
4. Durham University Library, Archives and Special Collections (DUL ASC), Church Commission Bishopric, vol. I, List of Financial and Audit Records of the Palatinate of Durham to 1649.
5. W. Brown, *Yorkshire Inquisitions*, vol. II, The Yorkshire Archaeological Society Record Series (YASRS) vol. XXIII (1898), pp. 112–13.

Fig. 1. Hull docks; drawn by N. Whittock, engraved by W. J. Cooke, published by T. T. Hinton, 1829.

Neither in themselves do anchorages provide access to dry land. They do make acceptable places for transshipment between different size craft. The Old Harbour (River Hull) was known for its 'overside' trade from the middle ages until shortly after the Second World War.[6] Direct evidence for transshipment at anchor in the Old Harbour is scarce, but ample opportunity exists nearby in the wider and deeper Humber of Hull Roads. A type of anchoring is used for discharging oil cargo at the Tetney Mono Buoy. Here the ship is moored to a buoy which is itself anchored to the bottom. A pipeline, which connects the shore and buoy, has a small floating extension which is in its turn connected to the ship. This port type, with the ship moored at one end and that end used for moving cargo with the shore, has a great similarity in its function to the staiths of the many rivers which cut through the lowland parts of the North German Plain.

A staith is generally a small projection from the shore, with its surface above that of high water, to which the ship can be moored.[7] In that the ships are moored to these mostly at one end only there is the connection to Tetney. The staith then provides the function on the one hand of mooring the ship to shore. That function in itself lacks sufficient reason for the engineering edifice of the staith. The staith's upper surface, between where it abuts with the ship and the ordinarily dry land, serves the function of a platform upon which cargo operations may be undertaken. These two functions are complementary with the one being less useful and difficult to sustain without the other. The staith, in its construction, protects the natural levee from erosion by human activity. At the same time it protects the hinterland from flooding; and herein lies part of the key to its very existence.

6. G. Jackson, *The History and Archaeology of Ports* (1983), p. 154.
7. This definition is my own. It does not agree with the OED.

How Staiths Began

The geological characteristic of the Vale of York is that it is completely flat. This is the result of the deposit left by Lake Humber during the last ice age some ten thousand years previous.[8] In its natural state the Vale has few dry places. Fortuitously some of these are the natural banks or levees of the rivers crossing the area. These small spots were the first places in the area to be inhabited and/or developed — nowhere else could be because it was undrained bog,[9] the vestigial lakebed. In this circumstance then the first port problem is met.

Communication in the area can be effected in time of great frost by walking over the frozen bog.[10] Without much doubt the method of normal linkage is by boat. Landing can be effected at suitable places at high water directly between boat and land in the dry season. In the wet season this cannot so reliably be done. Wherever and whenever the operation has to be done repetitiously, then good landings cannot be decently done and handling cargoes would exacerbate the problem. At any other state of the tide it is next to impossible to get up the muddy banks. Therefore some sort of permanent access between the dry land and the waterside has to be provided. This is not too difficult a problem, a vertical wooden ladder can be driven down into the riverbed and its head connected across the foreshore with a causeway. That is all that a simple staith is.

There are, however, problems with constructing anything that sticks out into the river. The river flow in vicinity of the staith is increased because the aperture has been decreased. This becomes offset by increased deposition further on. Established rights such as a mill race or fish garths offer competition to the creation of anything new, such as a staith. Where a staith functions for all as a common-user berth, then this benefit can find its place in the community. Where a staith forms part of a flood defence barrier, then its upkeep by the community is for the well-being of all.

Pre-history

Evidence of prehistoric port activity has to focus upon two or perhaps more chance finds. The North Ferriby boats and the Hasholme logboat have been well written up, the Brigg raft less well. These researches indicate that the interface level of water and land was lower then than now,[11] and thus any residual ports lie as deeply buried as those craft were. Clearly the wood working techniques had risen to have enabled port structures to be built but the boats in themselves do not indicate a need. It is a supposition that some timber scraps from the North Ferriby site of the second millennium BC are duck boards.

Consideration of sea-level in relation to the land requires two elements: the absolute movement of the water surface to be resolved against the absolute movement of the land mass. The datum for a eustatic change in sea level would be the earth's centre. An isostatic change in the land mass would produce a residual effect upon mean sea-level.

Roman Period

A continuing rise of sea-level during the Roman period is offered as an explanation for the early abandonment of their ports at Brough (Petuaria) and Faxfleet.[12] Against that

8. G. de Boer, Eastern Yorkshire: The Geographical Background to Early Settlement, *The Fourth Viking Congress*, ed. A. Small (1965), pp. 197–210. G. D. Gaunt, A Radiocarbon Date Relating to Lake Humber, *Proceedings of the Yorkshire Geological Society*, vol. 40, pt II (1974), p. 195.
9. J. D. Porteous, *The Company Town of Goole* (1968), p. 5.
10. J. Hamilton, *The Manuscript in a Red Box* (1903), p. 178; R. W. Unwin, *The Aire and Calder Navigation*, pt 2, p. 175; *The Bradford Antiquary* (1967).
11. M. Millett and S. McGrail, The Archaeology of the Hasholme Logboat, *The Archaeological Journal*, vol. 144 (1987), p. 146; for cargo timber p. 137, butchered meat 139, iron ore 148.
12. J. Radley, *Yorkshire Flooding* (1970), p. 9.

has to be offset the obvious difficulty of Ermine Street crossing the Humber and the undoubted success of the middle route north, west of the wet Vale of York via Castleford. Despite that, there appear to be Roman jetty survivals in Hungate in York along the River Foss.[13]

It is during the Roman period that large-scale civil engineering of port features are reputed to have been at least begun. The Fossdyke was dug from the Wash to Lincoln and from Lincoln to the Trent at Torksey,[14] enabling the northern armies to be fed from the grain of East Anglia.

The sophistication of Roman port operation shows in a stone inscription testifying to a pilot of the Sixth Legion — one Marcus Minucius Mudenus.[15]

Early English Staith Place-names

A curious juxtaposition to the Roman pilot is found in the Domesday entry for Torksey.[16] The imperial occupational status of the former appears to have a residual continuation with the pilots of this latter borough. The Torksey pilots were required to do their work on the king's business down the Trent and up the Ouse to York.[17]

By Domesday the classic medieval meaning of staith as an early type of jetty seems to be set. The word 'staith' is plainly Viking. Its surviving distribution from Norfolk and Yorkshire, through the Midlands, to Cheshire and Somerset includes the Danelaw. There is a notable omission of any such words along the Thames. Here though are found a number of hithes (Greenhithe, Rotherhithe) which were being recorded as early as the eighth century.[18] This has an interest in that hithe is not recorded in other Teutonic languages. Hithe has a clear resonance with staith. A relative of hithe can be found along the Trent at Stockwith and in Yorkshire at Hive.

The original Scandinavian words stather, staith and stede, however Anglicised, are ultimately connected with Latin statio.[19] This still means an anchorage, roadstead, bay or inlet and a modern lexicon goes back to Greek stasis.

The Humber estuary staiths are recorded throughout the full length and breadth of the waterway. Most settlements next to a navigable part of the river have a staith. They are concentrated in: York, within the walls; Hull, also within the walls; and Howdenshire. Despite those concentrations, staiths are found along the system as far west as Wakefield and Ferrybridge and as south as Gainsborough. Ancillary evidence locates staiths to the north at Bubwith and to the east at Salt End. The fulsomeness of the description of staith distribution is dependent upon both the survival of records and upon the chance of those records receiving attention. Whilst etymological studies emphasise the certainty of pre-Norman staiths, archaeological proof is not so plentiful even though a good argument exists for one at Doncaster.[20]

The first element of Stafford is a derivation of staith.[21] Whilst recorded before the tenth century and the fact that it is so inland,it appears to be an early usage of the term.

13. York Archaeological Trust, *The Waterfronts of York* (1988), p. 14.
14. M. Winton, Lincolnshire History and Directory (1874), p. 4; J. Priestley, *Historical Account of the Navigable Rivers and Canals* (1831), pp. 294–96.
15. Altar Stone, The Yorkshire Museum, York. RCHME *Eburacum: Roman York* (1962), p. 116b.
16. *Domesday Book 1086*, Phillimore edn (1986), f. 336d 337a.
17. D. Whitelock, *The Beginnings of English Society*, The Pelican History of England, vol. 2, p. 65.
18. *Compact Oxford English Dictionary* (1991), Hithe.
19. A. H. Smith, *English Place-Name Elements* pt II, vol. XXVI (1956), p. 147.
20. M. S. Parker, Some Notes on the Pre-Norman History of Doncaster, *Yorkshire Archaeological Journal* (YAJ), vol. 59 (1987), pp. 29–43.
21. E. Ekwall, *The Concise Oxford Dictionary of English Place-names* (1960), p. 435.

The Middle Ages

As can be expected, staith records after the Conquest become more frequent. Burton Stather is recorded in 1208 and a common-user berth is evident nearby, at Flixborough Stather in 1431. The earliest indications of staiths are simply defended river banks. By the time they become pieces of the shore jutting out into the river then they can not so easily be distinguished from jetties, wharves or quays. Jetty is found in Cornwall at St Ives in 1478 and on the Ouse at Hook in 1637 where it is synonymed with staith. As might be expected, with something so clearly Old English as wharf, it is found in Domesday at Wharton, in Lincolnshire. A drawing on a map of 1403 depicts a quay at Swinefleet. An exceptionally early usage of the word quay is found locally on the Humber in 1300.[22]

The quickening pace of industrial evolution after 1066 brought the first sloughing off of staith usage. At first staiths were principal places for ships' goods where hinterland interfaced with entrepot. Without any consideration of siltation, ships were becoming bigger and natural economics sent the bigger ships to the bigger (deeper) staiths. Therefore, while some staiths stayed in the seagoing trade others were relegated to the role of a feeder service. Until the advent of canals this role diversification was probably mutually efficient. It was not until the artificial constraint of custom checking was imposed that the smaller staiths were denied their natural access to wider markets.

Hull Staiths

A number of staiths are found in the City of Hull. They are on the west side of the river Hull. The river formerly had its western bank where now is to be found High Street.[23] The surviving manuscripts refer, in the first instance, to properties on the west or town side of High Street. To these properties came ships — up the river Hull. These berths were known from their earliest records right up to the present time as staiths. However, the very name High Street has led to a consideration of its original form possibly being the street of hithes. The street was recorded in the middle ages as Hull Street.

In time, better and ever better berths were built on to the original properties. This signifies encroachment upon the river rather than a shift of the river. This eastward extension into the river is presently halted at a continuous line of wooden berths, some varying a hundred feet from High Street. These constructions were generally split off from the original properties.[24]

Early records of these staiths have been studied by Dr R. Horrox. They figure in a plan of medieval properties of Hull, with each property numbered. Conveniently these numbers begin, running from north to south, along the Hull west bank. The records scantily indicate three things: the people involved, the rents involved and some linear dimensions of the staiths and associated areas.

Property number 4 is Salthouse Lane Staith. A town lease of July 28th 1609 gave Christopher Maxwell a bricklayer the right to construct an access. This was to be 11 ft wide between properties to either side north and south, and 8 ft from the ground upward, and in length 20 ft. Reserving to the Mayor and Burgesses space 6 ft broad and 8 ft high for a door or other passage to the staith. The rent, for eighty years, at 12*d.* 'The messuage was built by 1622 and continued to be leased by the town until 1691, when it was sold

22. W. Brown, *Yorkshire Inquisitions*, vol. III, YASRS, vol. XXXI (1902), p. 137.
23. Hull by B. S. Ayers in *Waterfront Archaeology*, (ed. G. Milne), Council for British Archaeology Research Report 41 (1981), p. 126.
24. R. Horrox, *Selected Rentals and Accounts of Medieval Hull 1293–1528*, YASRS, vol. CXLI (1983), p. 1.

to Sarah Dring, widow; and described as a messuage or tenement over the entrance to Salthouse Lane Staith'.[25]

Property number 19 is Bishop Staith.

Sep 20th 1565. Luke, son and heir of Henry Thurscross, came before the city council concerning Bishop staith. The messuage of the said Luke lay to the north of the staith and that of John Thornton to the south. The staith is to be kept in repair at the town's expense and Thurscross quitclaims all rights to it.[26]

Property 29 is Scale Lane Staith. The earliest document referring to it is a rental of 1347 and uses a different name.

Thomas de Flynton holds one plot; frontage 11½ ft; paying 4*s.* 4*d.* to the King. He also holds half a chamber over Aldburgh staith immediately south of his plot for which he pays 12*d.* to the church. (The other half follows). Master John de Barton holds one tenement; frontage 43 ft; pays 12*d.* to the King. He also holds half a chamber over the staith for which he pays 12*d.* to the church.[27]

A separate property, number 28, immediately to the north in 1540/41 describes it as Daniel staith; a tenement of Sir John Eland for 8*s.* 8*d.*

John Rotten Herring of Welwick owned an unnamed property, number 39.

Sep 12th 1452. Charterhouse lease to Roland Derwentwater, merchant, of one tenement with a lane and staith adjoining, 70 years @ 60*s.*[28]

Strangely it is a very early record of property 46 which preserves the extant name of Church Lane Staith.

1347, William de la Pole senior holds one tenement south of Church Lane staith; High Street frontage 56 ft; pays 26*s.* 8*d.* to the king.[29]

Next to it is property 45 which, using the name King's Staith, most likely indicates a common-user berth.

Nov 14th 1439. John Sleford of Beverley to William Saunderson and John Hedon of Hull, chaplains, a messuage: tenement late of Roger del Kerr, Kingstaith, Hull Street, with a chamber over the said staith.[30]
Jan 16th 1456. The town ordered Haynson to build and repair the staith of his tenement, in which Etton lives, as 'lez Stakes' now and of old situated in the water of Hull ... 1540/41 The aldermen of Our Lady's Guild, for tenements at the Kingstaith where John Car's wife lives 20*s.* ... 1552 Mr Dalton junior, a tenement occupied by Thomas Elwood ... 1591/92 Mr Thomas Dalton, a tenement in which he lives ... 1626 Leonard Scott, land late of Thomas Dalton The Occupiers of the land paid 1*d.* p.a. to the town for building which the town had permitted over the staith and this appears in the town rentals for the first time in 1564.[31]

Property 47 is towards the Humber end of the Hull river and begins to indicate a service area. On Dec 31st 1544 a merchant and two mariners lived here. One of the mariners, Thomas Petit, is very likely to have been a pilot.[32]

25. R. Horrox, *The Changing Plan of Hull (CPH) 1290–1650* (1978), p. 15.
26. R. Horrox, *CPH 1290–1650* (1978), p. 31.
27. R. Horrox, *CPH 1290–1650* (1978), pp. 34–35.
28. R. Horrox, *CPH 1290–1650* (1978), p. 41.
29. R. Horrox, *CPH 1290–1650* (1978), p. 46.
30. R. Horrox, *CPH 1290–1650* (1978), p. 45.
31. R. Horrox, *CPH 1290–1650* (1978), p. 48.
32. Thomas Petyt, The Rutter of the See, 18th March MDXXXVI, Lincoln's Inn Library.

Aug 24th 1560. Shaw to John Gregory, yeoman, lease of a tenement or house with a crane and staith at the back in High Street: tenement occupied by Robert Nailler, mariner S; tenement occupied by Thomas Petit N.[33]

The De la Poles were important Hull people who had property number 60.

Jan 9th 1391 ... a staith and a crane on the staith ... memorandum that the tenement with the crane and staith measures 21 yds 1 ft on its Hull Street frontage and 18 yds on its river frontage.[34]

Rotten Herring Staith is property 71.

Property 72 was Horse Staith and its name may have a continuing preservation further south at the present junction of Hull and Humber at the Horsewash.

July 14th 1316 ... six shops and a staith in Hull Street ... the staith lies between the staithes of ... and measure 60 ft in length ... the staith is opposite the shops ... and another piece of land with wharfage, 60 ft long ... Allerton's land on the quay. October 22nd 1632 ... three chambers one above the other built over a room used for laying sand in which lies over the Horse staith and ... 1675, these three chambers were over a room known as the chain house and belonges to the building known as the South End tower ... the shed over the windlass lately used for the said chain.[35]

This last entry is full of interest. Whilst preserving usage of the word staith, it introduces both quay and wharf. The shops are workshops. The chain was used for a dual purpose of regulating vessels' entry and exit to the harbour as well as keeping marauders at bay.

The records of Hull staiths are quite full for the medieval period and begin to dwindle away after the early modern period. That any record of them at all survives can perhaps be discerned by considering that some very precise measurements are given. These properties are the heart of the town and port. Where they occur along the inside of a river bend then, as they extend out into the river, their combined frontage to that river will diminish as a mathematical certainty. Hence arises cause for a squabble and a determination of who owns which piece, or has a claim to it. That these staiths were recognised as being so very important can be seen in the way that they figure in ancient charters.

In 1331 the Burgesses were to be free of duty when anchoring their ships in the river.[36] By 1334[37] they were granted quayage, or wharfage rights. An important grant was made to the Burgesses on 4th June 1382[38] enabling, if not encouraging them, to build houses, quays and staiths out into the midstream. A grant of 25th June 1443[39] confirms one of the original functions of staiths, granting the town rights in their fight against flooding. Two years later,[40] when the official town boundary was enlarged with the addition of the hinterland, the townsfolk were enabled to elect one of their own to be the King's Admiral of the Humber. Clearly this was to lead into conflict with York but Hull did ultimately, and with little resistance, win. Crucially this charter gave the citizens the indivisible right to collect port dues.[41]

The general advancement of regulation in the Middle Ages gave all the rights to the few established ports such as Hull. These rights made it difficult for any ports higher up the estuary to have a separate business life. Those that did not wither were confined to

33. R. Horrox, *CPH 1290–1650* (1978), p. 48.
34. R. Horrox, *CPH 1290–1650* (1978), p. 53.
35. R. Horrox, *CPH 1290–1650* (1978), pp. 58–61.
36. Hull Record Office (HRO), BRC 6.
37. HRO, BRC 7.
38. HRO, BRC 9.
39. HRO, BRC 16.
40. HRO, BRC 17.
41. J. R. Boyle, *Charters of Kingston upon Hull*, pp. 1–100.

the inland trade, and sometimes to the coasting trade. York was an exception; its foreign trade was important, which continued hand in hand with Hull. To transship York goods at Hull would not be too great an imposition for such an inland port. To impose that requirement upon Grimsby, which lay to seaward of Hull, was. The seed of the destruction of Hull's monopoly situation was its winning the right to weigh all goods passing through the port.

The Middle Ages saw an ever increasing accuracy in the weights and measures of all goods. The weighing was an essential tool of any regime of taxation. A charter of 21st August 1598[42] blatantly states:

> There has been a custom, from all time and of the contrary of which the memory of man does not exist, that every merchant who came by the water of Humber into the port of Hull, with merchandise in any ship for the purpose of commerce should unload, and put upon the land, the goods in the port of Hull, in certain staiths, cranes or other places, excepting goods of the citizens of York.[43]

Frequently, laws were not initially accepted and a second law was needed to back-up or confirm the first.[44] Perhaps to smooth ruffled feathers follow ups were specific as in March 18th 1610.[45] This charter stated that Derbyshire lead had to be checked at Hull, and, if it was not, the checking still had to be paid for regardless. In the next few years these rights were confirmed a number of times.

York Staiths

The surviving record of Hull staiths is varied because it is based upon rentals, charters and letters. Despite the record of York staiths being primarily from only one source, the House Books, it also is varied. The story of the two cities' staiths are widely contrasted: Hull's is one of unbridled success, whereas York's is of zealously guarded decline.

The ease whereby ships obtained passage to York during the Roman and Viking periods is evident both in commerce undertaken and in events before the Conquest. Domesday, which followed after, clearly states that there was common route upon the Ouse — one of the King's four highways into the city. York, as capital of the North, was given jurisdiction in the conservancy[46] of the rivers below it. Whilst the city vacillated in its use of that power, bullying the Hatfield Chace Participants, berating the Bishop of Durham at Howden and forever suing Hull interests, it never fully realised its power and voluntarily gave it away to British Waterways in the end.

Not divorced from the way in which the power of conservancy was handed to the city was its allocation of power as Admiral of the northern rivers and coasts.[47] This right stemmed from the way in which some law was administered as a peculiar court under canon or church law, and York being a metropolis. Whilst the Admiralty Court of the Archbishop of York was functioning well into the modern period, the inevitable shift to the headports of Hull and London ran unhindered. The power to hold such a court in inland England may still exist and be only dormant, however odd it might now seem.

The memorandum concerning the city's authority of conservation of 22nd March 1476[48] is fulsome in describing what must be looked to. The inquisition was to include goits, locks and floodgates. Goit is a little used alternative word for staith, with a usage

42. HRO, BRC 25.
43. J. R. Boyle, *Charters of Kingston upon Hull*, p. 128.
44. HRO, BRC 27.
45. HRO, BRC 28.
46. B. F. Duckham, *The Yorkshire Ouse* (1967), 34.
47. J. S. Purvis, *The Records of the Admiralty Court of York* (1962), pp. 1–8.
48. A. Raine, *York Civic Records* (*YCR*), vol. I, *YASRS*, vol. XCVII (1938), p. 3.

scattered both sides of the Pennines; the locks were almost certainly staunch locks rather than pound locks. This charge to oversee is quoted as stemming from before 1307. It was addressed to the bailiffs of Hook and to Howdenshire and orders that, if the nuisance to ships was not removed within three months, then it would be upon pain of 100 mark fine.

This concern with garths extending out into the river's stream becomes more active with passing years. It is not confined to the shoal upper Ouse but extends to the deeper lower Ouse. Here the Corporation considered that any encroachment into the river would be an impediment to the scour from tide and freshwater.[49] York's authority extended down into the Humber, so much so that they were able to secure an act for navigation in that area in 1531–32.[50]

The logic for the foregoing concerns can be discerned in that it is the city's route to the sea. But York was active with a barge to search out the river Aire in 1478. This was after an involvement with the Lord High Admiral, the Duke of Gloucester, at Gowdall on the Aire the previous year.[51] This area continued to be a centre of controversy through 1479, leading to riots in Snaith parish in 1482 and more in 1484.

The city freemen were active upon the rivers in exercising their rights, given to them by charter. Sir Marmaduke Constable held land at Scrayingham, which, whilst close to York, was nevertheless upon the Derwent. He attempted to charge them fishing tolls against their charter. Wisely they approached him with only a 'gentle letter'.[52]

York was authorised to oversee the Don also, and this became an active concern in 1626. The King owned this land south of the Ouse and he hired the Dutch to drain the Chase. This eventually required a new outlet for the Don. York forever fearful of their dwindling stream in contradiction forced them to build a sluice across the new Don mouth so that no tidal force would be robbed from the Ouse.[53] Their misguided sense of the forces at play was nevertheless in tune with the times; only an outstanding later engineer had sufficient acumen to point out their impediment at Naburn and distract them from their fruitless accusations.[54]

This positive interest in ships' unimpeded access upon the Ouse waters began, in 1503, to receive a more regular service. In that year the Mayor instituted an annual river survey, which has continued unabated until today.

Only 30 years after the survey's institution, the Mayor and Recorder brought themselves into conflict with the Prince Bishop of Durham. The Bishop was at that time President of the Council of the North — a singularly powerful position. In addition, the holder of the Bishopric was one of England's richest men. Not infrequently this position led the see of Durham to consider itself above any restrictions that might be sought or imposed by York interests. The manor of Howden, on the north bank of the Ouse with outlying holdings to both west and east, was a substantial property held by the Bishops of Durham in succession. On July 9th 1533 it is recorded[55]

> ... whereof ships and keels freighted with merchandice and victuals cannot pass through the King's stream to and from the said city, but are in great jeopardy of loosing both ship and goods. The garths upon the Ouse are made against diverse statutes of the King; and a great number of them

49. York City Archives, accession 65 f. 14r; published in *YAJ*, vol. 66 (1994), p. 182.
50. An Act for Pulling Down Piles Sett in ye Rivers Ouse and Humbre, 23 Henry VIII c.18.
51. A. Raine, *YCR*, vol. I, *YASRS*, vol. XCVII (1938), pp. 19–24, 27, 64.
52. A. Raine, *YCR*, vol. VI, *YASRS*, vol. CXII (1946), p. 128.
53. Nottingham University, Special Collections (NU SC), Hatfield Chace Corporation (HCC) 6001, pp. 1–40.
54. York City Archives, accession 65 f. 14v.
55. A. Raine, *YCR*, vol. II, *YASRS*, vol. CIII (1940), p. 191.

belong to the Bishop of Durham, which are unlawfully made with stakes, piles and other engines to the great nuisance of the King's liege people ...[56]

York had at one time been a Staple or Customs port. As with the passage of time all of this function was transferred to Hull, the weighing for foreign goods for York was done at Hull while being transshipped. Conversely, the valuable lead brought down from the Dales to York was conveniently weighed in a regulated manner at the city's common crane. The common crane belonged to the city for common use. Like the highway, the common staith was the King's Staith. There appeared to be separate centres of activity at this time, which may well have represented the divergent interests of the mayoralty and of the King, vested in the manor.

On June 28th 1476, John Bayley, the waterleder or staith clerk, appeared before the Mayor and Chamberlain to receive the special desire of the city. An Act of ordinance was made that 'measurements be taken of all manner of grains, salt, coals and other things to be sold, which came into the city on the Ouse. The said John to have the profits of measuring and to pay yearly for the next five years, to receive of every ship, boat or other vessell coming unto the staith of the city goods that ought to be metered or measured by meter, bushell, half bushell, peck and half peck, to be delivered at all times by the said John to the sellers and owners. That is to say, for every 20 quarters of every kind of grains and coals 1*d.* and for five quarters of salt 1*d.*, and so after that rate increacing and decreacing ... forfeit 11*d*'.[57] However, all can not have gone smoothly because, towards the end of that five-year period, it was agreed that the common crane, 'shall be kepid by the chamberlayne and a clerk for the year ensuying'.

The interests of York and of the Lordship of the manor differed. On March 15th 1490, Henry VII had caught the city letting some of its merchants not pay his duties. The King had the merchants' names and was sending to the city his own overseer, John Bampton. The King also reminded York that it was in his mind that York was only required to abate every fourth cloth for inspection at the Hull custom house.[58] Within a year this appears to have led to the King's standard measures being adopted, for four bushells and two nets of sea coal were provided newly made at the city's cost. It was by these and no others that goods were to be measured, the common payment being 2*d.* per measure for all men.

Like Hull, York had its other cranes and staiths. In Hull, until the building of a public quay for Customs purposes, the main commerce was done at the private staiths of the rich merchants. The opposite obtained in York with the main trade being brought to the common crane. This situation was buttressed by 'A bill in paupir dated 26th February 1505', which was written on parchment, openly read and set up at the common crane.[59] 'Every franchised man that has a crane of his own to take up his all manner of crane stuff at his crane as his cranes wares; except lead which shall be weighed at the common crane'. By 1518, 10th March, the city extended their control 'Also it is ennacted that every ship and boat of all strangers coming to the staith shall pay one time in the year to the Chamberlains for every such ship and boat 4*d.* for their ryngage', (ryngage being a payment for the bailiff).

The rigour with which laws were enforced can be visualised in the complaint made in midsummer, 24th June 1520, when there is little darkness. The goods were shipped 'by

56. A. Raine, *YCR*, vol. III, *YASRS*, vol. CVI (1942), p. 158.
57. A. Raine, *YCR*, vol. I, *YASRS*, vol. XCVII (1938), pp. 8, 52.
58. A. Raine, *YCR*, vol. II, *YASRS*, vol. CIII (1940), pp. 64, 82.
59. A. Raine, *YCR*, vol. III, *YASRS*, vol. CVI (1942), pp. 18, 69.

night suspicously'. For fair trading to take place and be seen to be so done it was normal to require such undertakings be accomplished in broad daylight.

Trade was regulated in other ways:

Thursday 15th May 1544. Agreed that every freeman of this city that bringeth any manner of grain to the King's Staith shall come to my Lord Mayour for the time being, for a price of all such grain. And that they, nor none of them, shall carry any of their said grain from the Kings staith before Saturday market be done. Then it shall be lawfull to the owners of any such grain to take it at their pleasure.[60]
7th March 1569. Agreed that no manner of person, freeman or stranger, having or bringing any manner of grain to this city by water shall be permitted to take up the same, or any part, before that he hath a ticket from my Lord Mayour licensing him to take up the same, or else to sell the same, at such prices as my Lord Mayour shall assess.[61]

Natural cyclic events such as harvest produce their own rhythms. During manmade congestion, good order needed to be imposed:

15th November 1577. Agreed that every keel, ketch and other vessell, which shall from henceforth come to the Staith with any merchant wares or coals, shall be unloaden from time to time, in order as they come thither. And that none shall deliver forth of any keel, ketch or other vessell any goods or merchandise on land, until such time as that that came before shall be fully discharged and carried away. Upon pain of 20*s*. And the Staith Keeper, or other presenter, to have for every such offence by him presented, 2*s*.[62]

The Staith Keeper was a diligent fellow named by the Lord Mayor, and paid yearly what the Mayor thought reasonable in 1551.[63] Covering the congestion period, this office was enlarged and taken more seriously by 1589.[64]

William Mangham, son and servant of Ralf Mangham, one of the measurers at the staith; took his oath in open court for his true and just measuring of corn, grain, coals, salt and other things as deputy for his father. Also Thomas Bell, servant unto James Allenby, another measurer there, did take like oath.

In the same year emerges an interesting example of how a tonnage certificate was arrived at.

And now was read in this court a certificate of the burden of a ship. Called the Elizabeth Jonas of York, furnished by Francis Jaque and others, and esteemed to be of burden of 200 tunnes and upward of her takelinge. Which ship was viewed and seen by diverse of good skill. It is therefore agreed that the certificate shall be engrossed and sealed with the Lord Mayors seal.[65]

All of these strictures would have been for nought were it not for two elements of wealth. Other towns with water access would have just as much need as York for ordinary items of trade such as farm produce and building materials like timber. The situation of York was much greater than that of a mere town; it was a city. In importance, if not size, it remained the administrative centre second to London. This position gave it a special place within the merchant life of quite separate towns as Hull. York merchants at Hull had special privileges within the port; at first dominating that port's commercial activity and then later subsiding into a significant portion. Beyond that, York was the

60. A. Raine, *YCR*, vol. IV, *YASRS*, vol. CVIII (1943), p. 109.
61. A. Raine, *YCR*, vol. VII, *YASRS*, vol. CXV (1949), p. 4.
62. A. Raine, *YCR*, vol. VII, *YASRS*, vol. CXV (1949), p. 164.
63. A. Raine, *YCR*, vol. V, *YASRS*, vol. CX (1944), p. 50.
64. D. Sutton, *YCR* vol. IX, *YASRS* vol. CXXXVII (1976), p. 50.
65. D. Sutton, *YCR* vol. IX, *YASRS* vol. CXXXVII (1976), p. 53.

first significant collecting and measuring point for Yorkshire, and indeed Derbyshire, lead — lead remains a very valuable commodity.

On November 6th 1498 the full council sat to consider various causes within the public welfare according to the ordinances made in other ports.

It is enacted that all manner of men, denizen as well as foreign, that who from this day forward shall bring any manner of lead from Boroughbridge, or any other place, to this city, by land or water, to be wound and weighed at the common crane of this city; shall pay to the city for every fodder of lead 7*d.*, of which sum a penny shal be given to the labourers for bringing the lead from the garret to the scale, from the scale to the crane garth and from the crane garth into the garret again, there to be stricken.[66]
Item it is enacted that no manner of ship, keel nor boat take in nor deliver any lead, wine, iron or any other merchandise or goods called crane ware but at the common crane upon pain of forfeiture, for every time, of 40*s.* to the city according to the ancient ordinance.

In the way that York interests were quite prepared to bypass Hull, when their chance arose, so too did those of Boroughbridge in their turn seek to bypass York, in order to get to Hull:

11th July 1500. It was agreed that no franchised man or person of this city, from hence forth to take into his ship, keel or boat any lead which was weighed at Boroughbridge, and carry it to Hull or any other place, upon pain of 40*s.*

If in the event of it ever happening then they were to be banished and the fine increased to 20*s.*[67]

This led directly to conflict on February 20th 1504.

Assembled at Ousebridge the Master Recorder showed how the King's Justice of Assize showed that John Swale of Richmondshire, a gentleman and lead seller, hath complained that where he brought 11 fodders of lead to the common crane, and there it hath been a long time and none of the city would buy it. Now that John Swale hath sold it to a stranger the mayor hath caused the lead to be restrained.[68]

The disputation continued through the following year this time with Newcastle merchants being brought up. York, and indeed Hull's, position of seeming monopoly was not unusual. Frequently they had reciprocal arrangements with other ports citing London, Hull, Boston and King's Lynn. Foreigners were charged 13*d.* for weighing every fodder of lead, and for stricking of every score great fotemele 20*d.*[69] A fodder, or fother (fathom) was a cartload, a thirtieth of which, at about 70 lb, was a fotemele.[70]

The city realised that their good times were coming to an end by a case of 19th December 1520, which concerned London lead. 'The price of lead a fodder is from 5 marks to £4 6*s.* Lead is the greatest commodity that we have for the support of our poor city'.[71] By 1550 a permit was issued to export two hundred fodders of lead out of Hallamshire.[72]

Lead was weighed on its outward journey and little else was weighed coming inwards. '23rd January 1521. Did Price 80 ends of Spanish iron, weighing 24 hundredweight, of the goods of Thomas Gilbank, armiger. Lying in pawn for £4 to 4 mark the ton.'[73] Wool

66. A. Raine, *YCR*, vol. I, *YASRS*, vol. XCVII (1938), p. 138.
67. A. Raine, *YCR*, vol. II, *YASRS*, vol. CIII (1940), p. 159.
68. A. Raine, *YCR*, vol. III, *YASRS*, vol. CVI (1942), p. 12.
69. A. Raine, *YCR*, vol. III, *YASRS*, vol. CVI (1942), p. 17.
70. *Compact Oxford English Dictionary* (1991), Fother & Fotmal.
71. A. Raine, *YCR*, vol. III, *YASRS*, vol. CVI (1942), p. 71.
72. A. Raine, *YCR*, vol. V, *YASRS*, vol. CX (1944), p. 47.
73. A. Raine, *YCR*, vol. III, *YASRS*, vol. CVI (1942), p. 77.

and cloth has so frequently been a principal Yorkshire export but such cargoes did not require weighing and so figure little in the city's records although some mention of differing cargoes is made: '19th September 1571. Agreed that all timber lying at the common Staith and at Skeldergate postern shall be drawn up with two draughts and laid upon the shore'.[74]

In 1498 payment for carrying the cargoes between ship and shore had been settled. On 30th October 1566 it was decided how the work should be specifically apportioned,

> It is now agreed that neither the porters nor labourers shall from henceforth carry any wood or boards from the stath or landing, so long as the sledmen can be ready to serve at reasonable price with their sleds. But at such times as the sledmen are overlayed with other ware, so that they can not serve the parties in due time, then the porters to help to bear wood and kidds; and no labourer to be in any way taken before the sledmen or porters.[75]

A potentially interesting entry arises with an entry of 3rd July 1573. A Mr Christopher Nelson made suit that he might bring western coal to sell in the city. He was granted this liberty to bring coal from the West Riding.[76] Further references indicate trade with Grimsby and contact with the Hansa Teutonica. A surviving street name 'Divelinstaynes' is taken as a remnant of trade with Dublin from its dedicated staith.[77]

All of this activity at and near the common staith caused it to need maintenance. February 14th 1491:

> It was determined, ordained and enacted for an ordinance firmly hereafter to be observed; that every foreigner coming and bringing to the common staith, within the city, any ship, boat, cog or other manner of vessel; that cometh by water and fastens at the said common staith shall pay to the Chamberlain for the time being; for his fastening, ryngage and quayage of every vessel 4*d.*; to be employed to the amending of the said quay or staith.[78]

This unfair loading onto foreigners only was clearly not enough. By 1565 a clear method of repairing the staith was put in hand. March 16th:

> Memorandum. That where Ouse Bridge and staith must be speedily re-edified to the exceeding charge of this city, certain motions were made and commented upon by my Lord Mayor, how most convenient and without any distress to the citizens, a sum of money may be levied towards the said reparations.[79]

Three months later they were ready to act.

> Agreed that two letters shall be forthwith made from my Lord Mayor and his brethren. The one to Mister Ralph Hall and the other to Sir Martin Bowes. With as much speed as may be, to get a cunning man in devising of jetties for re-edifying and repairing of Ouse Bridge and Staith. And Mister Fawks is thought mete to go with all haste for getting the said man. And he to learn if any engines, or stuff mete for that purpose, is to be gotten at London, that can not be gotten here.[80]

The following year, on 10th April 1556, materials were being brought in via the staith itself; thus indicating that it remained at least usable. William Oldred, the mason, advised that ready scalped and squared freestone be bought at 3*s.* a tonne and lime at 3*s.* the chalder.

Within eighteen months the repairs were complete. The master mason had been

74. A. Raine, *YCR*, vol. VII, *YASRS*, vol. CXV (1949), p. 37.
75. A. Raine, *YCR*, vol. VI, *YASRS*, vol. CXII (1946), p. 119.
76. A. Raine, *YCR*, vol. VII, *YASRS*, vol. CXV (1949), p. 75.
77. D. M. Palliser, The Medieval Street-names of York, *York Historian*, vol. 2 (1978), p. 9.
78. A. Raine, *YCR*, vol. II, *YASRS*, vol. CIII (1940), p. 82.
79. A. Raine, *YCR*, vol. VI, *YASRS*, vol. CXII (1946), p. 97.
80. A. Raine, *YCR*, vol. VI, *YASRS*, vol. CXII (1946), pp. 100, 113.

replaced by one of the name of Walmesley. Of his work the city seemed 'well content' for he was rewarded with £20 'over and besides his wages'.[81] The work appears to have been undertaken in stages for when Walmesley is rewarded he is also spoken to to be here the next year for the staith. Word is given on the following January 15th 1567 for the mason to be present on next Low Sunday for repairing the staith's foundations. Walmesley must have impressed his employers because on August 4th the same year he and his servants are again rewarded with forty shillings. This time it was for standing and working in the water.

Further expense was made at the staith in 1570 for increasing security. By discretion of the Chamberlain doors and gates fitted with ironwork were to be made for keeping the wares received there.[82] This cosy discretion and uniformity of resolution was not so evident in 1589 when solicitors for the Commons were petitioning. This was for the staith to be both repaired and made higher at the far end. As always the work was required to be carried out with expedition.[83]

At least one staith was for a dedicated purpose — that of fish landing. Land to the north east of Ousebridge for this purpose was set aside in 1567[84] and leased to Andrew Trew. Consideration in its provision was made both of the riparians and of access to the boats. Mr Trew and his heirs were still in possession five years later, paying 16*d.* to the Chamberlain yearly.[85]

All of this successful maritime activity did not prevent the citizens being coy about their wealth when calls were made upon them in defence of the realm. On February 6th 1544 they sent a letter to the then Duke of Suffolk who was Lieutenant General of the North.

> Please be advised that there are two crayers of 36 tonne apeice, now at York and able to go to sea, and no more. Either of the said crayers sail with six men, which shall be ready at Your Grace's commandment upon one days warning. ... Truth is that the water of Ouse is often so low that the crayers can not pass from York to Hull, and therefore I will be glad to know your Grace's pleasure. ... Further more, please be advised that there are ten vessells belonging to the City called keels. They are of 40 or 30 tonnes and not able to go to sea but only to convey merchandise between Hull and York. The which vessels shall be ready at all times as it shall please Your Grace.[86]

Later that year they were able to claim 'that we have no ships nor mariners but only lighters'. Central Government, of course, was not to be fobbed off. Twelve months after the first letter, a more considered statement was produced.

> Vessels belonging to the city of York: The Margaret, Robert Hikkylton and John Byrtbe owners, having her sails and tackle, without ordinance of 41 tonne portage; The William, Francis Trotter owner, having his sails and tackle, without ordinance of 38 tonne, which vessel is now pressed to Boulogne; The Myghell, Myghell Bynksm owner, having his sails and tackle, without ordinance of 36 tonne.

Whilst their initial letter was extraordinarily rude to the King's representative, it was, nevertheless, not without truth.

81. A. Raine, *YCR*, vol. VI, *YASRS*, vol. CXII (1946), pp. 119, 123, 128.
82. A. Raine, *YCR*, vol. VII, *YASRS*, vol. CXV (1949), p. 11.
83. D. Sutton, *YCR*, vol. IX, *YASRS* vol. CXXXVII (1976), p. 95.
84. A. Raine, *YCR*, vol. VI, *YASRS*, vol. CXII (1946), p. 129.
85. A. Raine, *YCR*, vol. VII, *YASRS*, vol. CXV (1949), p. 62.
86. A. Raine, *YCR*, vol. IV, *YASRS*, vol. CVIII (1943), pp. 99, 120, 123.

August 9th 1557. Whereas a communication was lately heard with Mr Matthew Hirst concerning cleansing of a certain part of Ouse, for easy passage of ships to and from this City; the said Matthew is first to begin with his work at the staith where the most need is.[87]

Increasingly the depth of water in the Ouse below York was to concern the City Fathers. They rarely came to grasp the situation and this is reflected in their generosity of 9th March 1570.

James Cornysshe, shipwright, offered to cleanse the water of Ouse in places needful, and to make it 7 ft deep over the shoals at low water. Agreed that if the said James bring the same to pass that he then, in consideration thereof, shall have £10 annuity for term of his life. And also that he, and James, Robert and John Cornysshe his sons, shall be made freemen of this city without paying anything. Agreed also that the said James Cornysshe, and — Todd carpenter, shall go together tommorow and provide for timber (where it can be gotten) for making a gabbard, a drag and other instruments mete for the said river.[88]

By the end of the Middle Ages, York staiths had begun to lose their dominant importance to the city. A practice had been established of moving their wares and needs via the flourishing port of Hull. With increased regulation of overseas trade this prôved to be a satisfactory mode of transport. Added to that land carriage by better roads became a competitor to the waterborne traffic as never before. Despite the coming of the railways, river traffic did continue. Queen's Staith, directly opposite King's Staith, is testimony to the Victorian surge in trade. King's Staith in 1996, with its cobbled working surface and stone berth, stands in pristine condition as an example of one of England's great economic places.

Howdenshire Staiths

The notes on staiths at Hull and York are taken largely from civic records of major places. That staiths figure at all in that type of record is an indication of the status of staiths in the economic everyday life of those settlements. Neither of those two places produces any records which are exclusively of or about staiths. The records for Howden do.

The staith records for Howdenshire extend back to 1445 and are very complete.[89] The records are those which were sent back to Durham by the successive Receivers in the Bishopric. The Bishop of Durham held the Lordship of Howden Manor. The records extend almost up to the Second World War when the Church Commissioners, in succession to the Bishops, disposed of their assets. A large part of the archive are 'Staith Books' which record the maintenance costs of the staiths. The earliest records are in Latin, but then quickly change to English. Those, in English, from the beginning of the Early Modern period have been the easiest to transcribe.

The way in which the staiths emerge from early river bank strengthening is detailed by William Dugdale. The Commissioners of Sewers were organising the work of land draining by 1427, most notably in the fens.[90] Earlier commissions were underway locally in 1294 when Hugh Cressingham and John Lithgreines surveyed the area between Cawood and Faxfleet on both sides of the water. This was to assess who ought to repair and maintain the banks to secure them against inundation, as they and their ancestors

87. A. Raine, *YCR*, vol. V, *YASRS*, vol. CX (1944), p. 150.
88. A. Raine, *YCR*, vol. VII, *YASRS*, vol. CXV (1949), p. 20.
89. DUL ASC, *List of Financial and Audit Records of the Palatinate of Durham to 1649* (1957), p. 104.
90. W. Dugdale, *History of Imbanking and Draining* (*HID*), 2nd edn revised by Charles Cole (1772), p. 369.

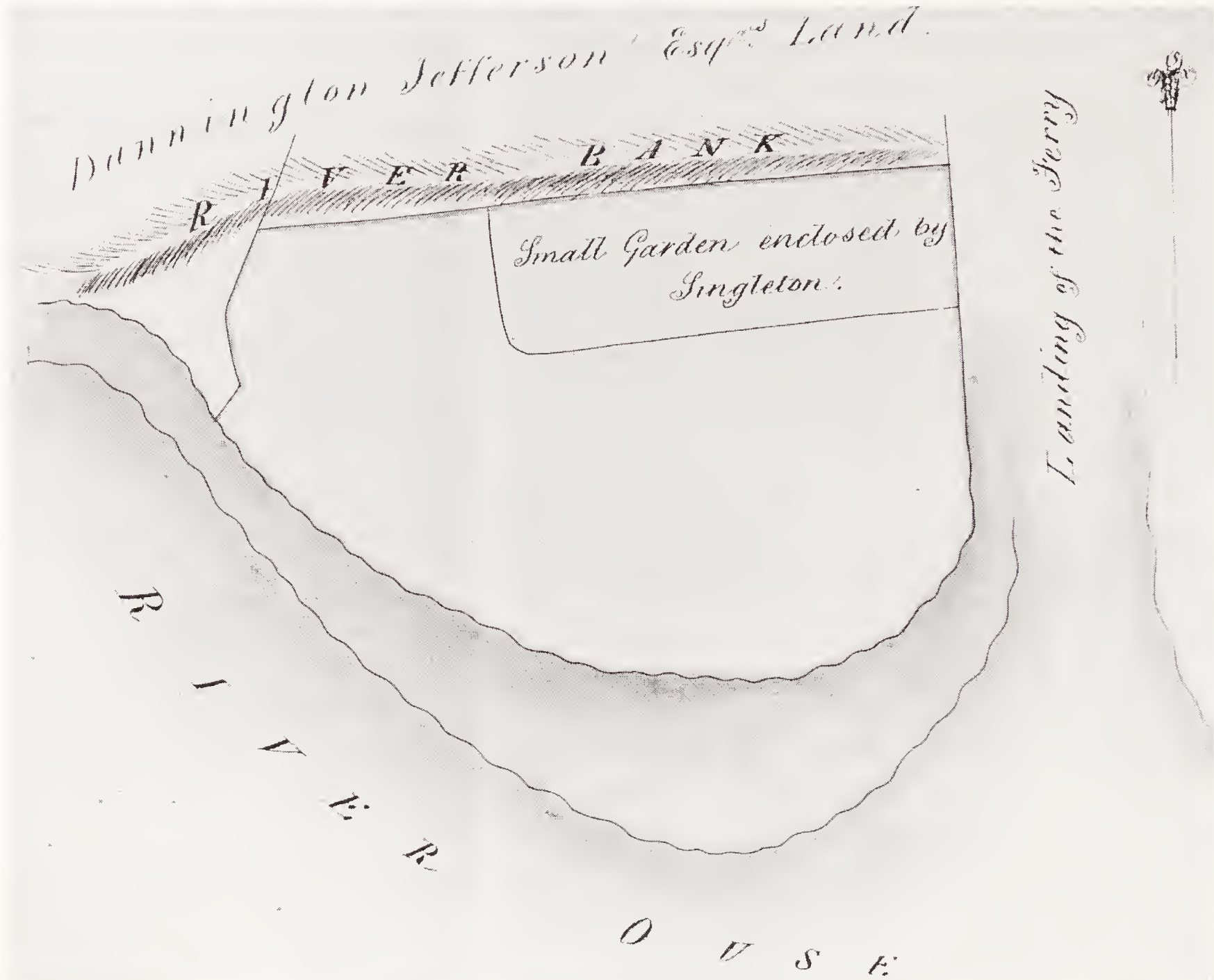

Fig. 2. Plan of Bishops Staith, Howdendyke, 19th May 1823; reproduced courtesy of Durham University, Archives and Special Collections, Church Commission, Halmote Court, Sundry Notitia, Bundle 1 item 11 (e).

in times past had done. The King assigned them to take such course for the redress of the same as should be consonant to the laws and customs of this realm.[91]

Various surveyors of the river are noted as the banks eroded and were repaired, year by year. Then, in 1314, inhabitants of the river Don complained that, partly because of the sea tides and partly because of undue river straightening, their banks were being overwhelmed. Nine years later this route for ships to get to Doncaster was set at a fixed width of 16 ft and one grain of barley corn.[92]

The earliest direct reference to any staith in Howdenshire does not occur until 1520.[93] These records are in Latin but fortunately they preserve place names and particularly staith names in English. The lists are of costs in maintaining the riverbanks, staiths and clows. This type of record was copied down in similar fashion for the next 300 years and more. The staiths can be identified with those surviving in 1995.

91. W. Dugdale, *HID*, p. 115.
92. W. Dugdale, *HID*, p. 118.
93. DUL ASC, Church Commission Deposit (CC) 221640.

At Saltmarsh are listed the great, middle and west staiths; Staith being spelt stath. Sandhall has a great staith, Kilpin simply a staith and Skelton one each to north and south. The records consulted by Dugdale refer to a place called Dikesmyne, which is repeated here. This must be an earlier form of Howdendike, its second element of river mouth is still found nearby in Airmyn. At Dykesmyne are found four staiths: great (magna), west ebb, east flood and west flood. This first document includes the great staith at Boothferry also. The Victorians separated the spelling of Boothferry into two words,[94] but here is a good clear example of its early merger and dominant usage. This staith can clearly be seen by anyone standing on Boothferry Bridge and looking towards the Ferryboat Inn.

Somewhere between the four Howdendyke staiths emerged the old course of the Derwent. This had been used for taking the stone into the town with which to build the Bishop's manor house and the minster itself. Clearly this residual dyke gives cause to the name of the settlement on the riverbank. Echoing the protected creek of the River Hull, perhaps this small stream gave rise to a harbour function here. During the Commonwealth it was called Howden Haven.[95] The techniques developed locally to first preserve a navigable way and then secondly to drain the land, and thirdly to keep the main tidal river water from out of this dyke, are the elements of engineering which went into the construction of staiths.

Perhaps the commonest staith name is great, which, together with King, Queen, Common and People, indicates that they are public staiths for everyone's common use. Locational names such as north and middle are a help in determining precisely where they were or are. Simply named staiths, as at Kilpin, also probably indicated public use but not always, as in Painter Flatt.[96] These sixteenth-century records indicate a special staith usage or function. Where staiths are called ebb and flood then this must indicate the period of the tide in which they were used. Spring flood tides in this area only flow for about two and a half hours. This, combined with the larger range of the spring tides of about six metres, indicates how vulnerable a craft would be to the roaring tide and especially the local tidal bore — the eagre. Another element which can be deduced from this special situation of ebb and flood staiths is that the ships using them were tied up at one end only. This practice continues and can be seen in ships tying up at Victoria Pier, Goole. It was depicted in contemporary use in the River Hull.[97] In a busy place, with a small quay space, as at York, then more ships could be brought into contact with the shore by this practice.

The Reformation brought about a review of church finances. To that end Howden was surveyed in 1561.[98] This survey describes how the timber from Howden Park was used for maintaining the staiths.[99] By the end of Elizabeth's reign, the Bishop in a court case had to defend this taking of Great Timber from Howden Park.

Howden and Howdenshire are situate and lying in a low country subject to inundation of water. And in continual danger to be surrounded were not such inundation of water carefully provided

94. See the street name-plates in Booth Ferry Road, Goole. Maurice Beresford indicates that this must have previously been called Moregate or Murham Lane. It leads directly to Murham Staith which lay under the present Victoria Pier opposite Shuffleton Mill.

95. DUL ASC, CC 23384 p. 22.

95. DUL ASC, CC 221641.

97. British Library, Cotton MS Augustus I, vol. I, f. 80.

98. DUL ASC, CC 189550.

99. J. Raine, On the Episcopal Palace at Howden, *Associated Architectural Societies Reports and Papers*, vol. 8, pt 2 (1866), pp. 295–302.

for and prevented. By fortifying and strengthening the bank of the rivers in that country with such waterworks as in the Bill set forth.[100]

The financial revolution of the previous century began to reach a conclusion in a number of Parliamentary Surveys during the Commonwealth period. The surveys in general were done with accuracy and much scepticism. The Howden Survey[101] is accompanied by articles of instruction of how it was to be done. These instructions[102] place the office of Admiral hereabouts within the Bishop's gift. This is clearly a claim to conflict with York's. The surveyors are to seek out where live they who

do perform and execute such service as they are bound to do, in the repairing, maintaining and upholding of the several staiths and water services within the said liberty of Howden. And in whose default the same are so leased.

The Survey penetrates further, wanting to know

wether hath there been any unloading of merchandise, wares, timber, woods, corne, peats or any other carriages upon the staiths belonging to the repair of the said Bishops of Durham. And wether the same be by wains carried there to the repairings of the same staith. And by whom is the same done.

The Survey provides a clear picture of Howdenshire in the Spring of 1648. An annual market was being held in the town which attracted London merchants. A great road ran through to Hull and York and another to the great clothing towns of Leeds, Wakefield and Halifax. The town was connected with the great navigable river Ouse by a ditch along which the passage of boats was worth 12*d.*[103] Robert Leighton lived in a house on half an acre of land next to Saltmarsh East Staith. The house had been built by his wife's former husband, John Empson, for the convenience of attending the staith.

There is a large common, within this manor, called Bishopsoil of 1,500 acres. The timber from which is for the most necessary repairation of the staiths, pikes cloughs and waterworks — set up to defend the same from the volume of the tide. The charge of maintaining the staiths etc. for the last four years amounting commonly to £170 and upwards. This was done by the Deputy Receiver, Mathew Howard, and his acquaintences under the Staithmans hand. Upon the judgement of workmen and men of skill and the oaths of other men and in the surveyors own opinion the cost would be the same at £170. (Wood and timber daily growing dearer and the carriage further off now that there is neither on the Lords' lands.[104])
The tenants and inhabitants of Howden with one mouth affirm that the Lord did, and ought of right and custom, make and repair the staiths, pikes and cloughs upon the river of Ouse, for the necessary saving of the land from the overflowing of the river. We, to be ascertained of the truth took, (beside a journey of 30 miles) the pains to search the records extant with the clerk of the Commissioners of Sewers from the begining of Queen Mary's reign to this present year of 1648. We find this, which for further satisfaction we have copied: 'Item we find that the Lord of Durham doth maintain all these pikes staiths and foreshores following viz. At Booth two staith and against Howden Groves much foreshores. At Painterflatt one staith or pike to be done by the Bishop or owner of the ground. At Howden two staiths (but should be three). At Gilpin one staith. At Skelton two staiths. In Saltmarsh field two pikes and at Saltmarsh town one staith.'[105]

The Lordship of Howden manor passed into the hands of Sir William Allenson and two Netherthorpes. Durham, however, subsequently regained possession and, in 1662,

100. DUL ASC, CC Bpric (1981) 304265 f. 1.
101. DUL ASC, CC 23384.
102. DUL ASC, CC A.15.10. f. 1.
103. DUL ASC, CC 23384, p. 6.
104. DUL ASC, CC 23384, pp. 38–39.
105. DUL ASC, CC 23384, p. 43.

Bishop Cosin surveyed his estates. He clearly states that it is his necessary expense to maintain the staiths and banks against the violent irruption of the river. If the land were to become flooded due to his neglect, the Commissioners of Sewers would fine both the Bishop and his tenants, which would cost yearly £100 or more. He laments that the former purchasers had neglected the staiths and banks and were very much ruined. In 1661 it cost the Bishop no less than £400 in repairs.[106]

The meticulous staithing accounts are resumed for 1665[107] with the first four year totals being £81, £53, £80 and £91 respectively. These costs were mostly for timber and its carriage, the staithers' labour being about one sixth of the total. The work is surveyed annually by the Commissioners of Sewers and the surveyors are paid 2*s.*[108] by the Bishop to do so. Costs began to rise, with the surveyors' fees becoming 2*s.* 6*d.* and repairs being undertaken to Howden town end bridge. Thirty six years after the earlier major repairs, annual cost had reached £152. The Bishop's Receiver at Howden, John Dunn, paid 1*s.* 2*d.* for every load of wood, which has its own terminology:[109]

60 kids make a load
60 piles make a load
20 bunches of withers a load
32 yeathers to the bunch

The timber was brought from five or six miles away.[110] In general the cost stayed within budget right throughout John Dunn's long receivership. He was a canny accountant who worked alongside the stathers and charged for his labour alongside theirs. In addition, he put down for £6 per year as his salary.[111] His son may have taken over in 1741[112] but the same name continues until August 18th 1770.[113] Extra cost was incurred in 1756 to £225 and the year after to £206.[114] Accounts dated 1783 bear the new name of Richard Ward,[115] and record that 30 tons of stone to Howdendike staith cost £3 2*s.* 6*d.*, with the same to Chapmans Staith on August 16th followed by the same again three days later. Another Dunn, Blenco, figures in these accounts whilst a woman,[116] Dorothy Wells of Boothferry, was supplying staithing wood. More stone is supplied in the Autumn of 1797[117] with the following year's total staith cost at £214.[118] By 1811 it had jumped to £476.[119]

The quantities of timber put each year into staith maintenance indicates that it was not durable. Either the wood itself was soft or the structure was eroded by the tide or even usage, or perhaps a combination of these factors. Large engineering structures such as staiths and locks upon the river were emerging as sound structures of stone in 1699.[120] Clearly, where stone could be used, as evidenced in the intact wharf at Thorne, less maintenance ought to result despite the commodity being more expensive. That is not to say that stone use was not without its own problems, for the massive weight involved

106. DUL ASC, Cosins Survey (1662), p. 234.
107. DUL ASC, CC B.1a.1.
108. DUL ASC, CC B.1a.9.
109. DUL ASC, CC B.1a.29.
110. DUL ASC, CC B.1b.43.
111. DUL ASC, CC B.1b.13 f. 8r.
112. DUL ASC, CC B.1b.30.
113. DUL ASC, CC B.1b.49.
114. DUL ASC, CC B.1b.45, 6.
115. DUL ASC. CC A.10.22 f. 1v.
116. DUL ASC, CC A.10.24 f. 1r.
117. DUL ASC, CC A.10.27.
118. DUL ASC, CC B.1b.50.
119. DUL ASC, CC 220896.
120. York City Archives, Accession 65 f. 30v; published in *The Local Historian* (May 1996), p. 102–14.

at the water's edge required a different technique. The hollow walls at Grimsby, devised by John Rennie, were an example of how adaptation had to be employed.

Stone[121] for the Great Staith at Howdendike may have been used as early as 1767. That Autumn had great rainfall coming down the river as fresh. This swilled away and sunk the west side of the Great Staith, leaving the upper platform hollow. It was decided to infill this with stone.[122] However, by 1771 conservation of Howden Park had improved sufficiently for timber for the staiths to be cut from there rather than having it all bought in.[123] This was oak timber and the sale of the parts, such as the bark,[124] which were not needed for repair were put to offset the cost.

One of the Bishop's officers, Arthur Mowbray, was sent down from Durham to survey all the staiths in 1793. His paper dated at Sherburn on December 26th[125] gives a vivid description of the staiths during this transition from simple wooden structures to more durable ones of stone. In addition, there is a good sketch of the river from Boothferry down to Saltmarsh. From this map an accurate identification can be made of which staiths have survived.

Eye section of a part of the river Ouse, near Howden in the East Riding of the County of York. Taken with an intent to shew the Tucks or Staiths and Cloughs on the north side of the said river, repaired and upheld by the Lord Bishop of Durham, his lessee and others.

General Observations

The distance between the Bishop of Durham's first and tenth staith is by computation three miles and a half. And except from Boothferry to the Bishops second staith, it does not appear that there is any ground immediately adjoining the river belonging the Bishop of Durham. The distances between each staith by computation are as follows (viz). From the 1st to the 2nd 2500 yards, from the 2nd to the 3rd 150, 3rd to 4th 350, 4th to 5th 350, 5th to 6th 800, 6th to 7th 200, 7th to 8th 860, 8th to 9th 100, 9th to 10th 850; together $3\frac{1}{2}$ miles.

The Bishop of Durhams' lessee (Mr Jefferson) repairs two staiths marked A, B and one clough marked C. The five cloughs marked D are upheld and maintained by the owners of adjoining grounds. The five staiths marked E are upheld and maintained by Mr Schofield of Sandhall.

Mr Blenco Dunn of Howden estimates the repairing of the Bishop of Durhams ten staiths per annum, including risk, as follows Viz: No. 1 £20. No. 2 £40, No. 3 £40, No. 4 £30, No. 5 £40, No. 6 £20, No. 7 £30, No. 8 £20, No. 9 £20 and No. 10 £40, together £200. Yet Mr Dunn hopes that they may not amount to quite so much for a few years to come as he believes they [are] now in good condition.

These staiths and cloughs are viewed twice in every year (Lammas and Michaelmass) by a certain number of respectable men in the neighbourhood, called Commissioners of Sewers. Who examine each staith to see that it is of a proper strength and height to prevent the river breaking in upon the banks and overflowing the neighbouring lands. They also attentively view the cloughs and drains and give such directions for the altering, enlarging and amending the cloughs and deepening the drains as they think proper. If their Directions are not complied with, within the time they limit, a return is said to be made to a Court in London. Which imposes fines to be levied on the parties who have

121. DUL ASC, CC 220475 — 22 paper 2, f. 1v.
122. DUL ASC, CC 220854 letter 2.
123. DUL ASC, CC 220866 folder 9 letter 3, f. 1r; CC 221143 letter 2.
124. DUL ASC, CC 22–966 folder 9 letter 5, letter 4, f. 1v.
125. DUL ASC, Halmote Court (HC), Sundry Notitia (SN), bundle 1, item 11 (b) ff 2.

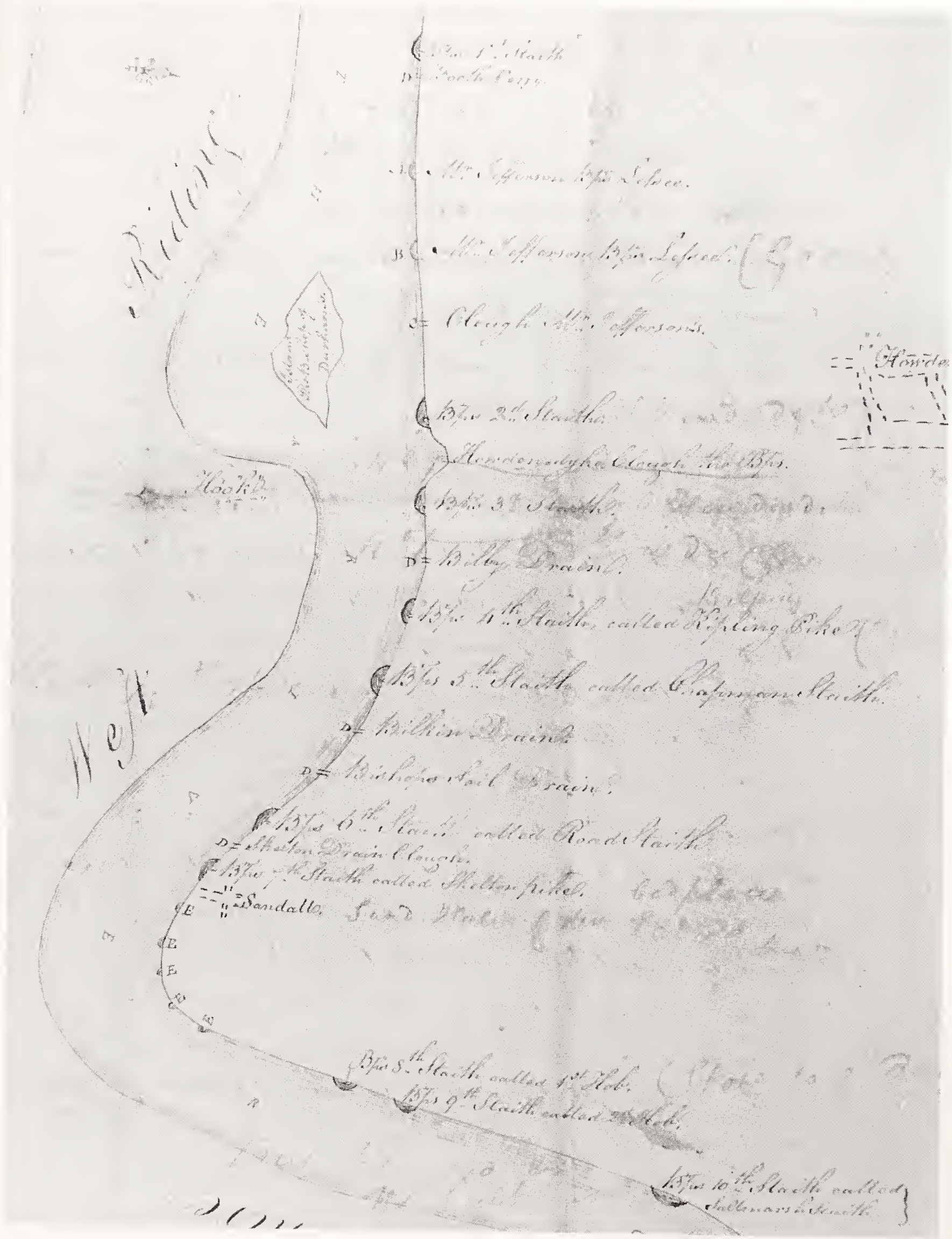

Fig. 3. River plan of Howdenshire staiths, 26th December 1793; reproduced courtesy of Durham University, Archives and Special Collections, Church Commission, Halmote Court, Sundry Notitia, Bundle 1 item 11 (b).

repaired the same and those fines are paid into the hands of the Commissioners and applied to those purposes. It appeared to me a little singular that the Bishop of Durham should be at so great an expense in repairing such a large number of staiths and so few of them adjoining his Lordships estates. And on asking Mr Spofforth this question he did not then recollect how the Bishop of Durham could first have been charged with these repairs except as Lord of the Manor. And he presumed having repaired them for so long a time probably custom would oblige the work to be continued.

These staiths are upon an average 25 feet high. Built next the water with brushwood faggott about 6 foot deep. Bought in the Country (at 6/- per 120) and driven through with piles, about 8 feet long. Which are also bought in the neighbourhood at different prices (from 1/- to 1s/6*d* per score). It frequently happens in high tides that the water breaks over these staiths with great violence, sinks down through the sand or inner lining, and by that means washes away the foundation of the faggotts or outer work. Being only laid upon the sand and driven through with 8 feet piles, which seem hardly equal to support the faggott work 25 feet high, provided there was no extraordinary flood of water to encounter with. At other times these staiths receive damage by vessells driving against them in stormy weather, and by the ice and other floating bodies coming down the river. It probably may be an improvement of these staiths and make them more firm and lasting, to drive a set of piles 25 foot long, 3 foot from the faggott work and about 18 foot distant from each other, round the inside of the staith. And to drive a set of strong piles about 10 or 15 feet long (as the foundation may require) equal with the surface which would be a foundation for the faggotts. Some few of these might be nearly of the same length as the outer ones but smaller. The faggotts might be pressed together with small pieces of timber passing over them and nailed to each of these long inner piles. This method it is presumed would secure a foundation, and the outer piles would prevent the staiths being damaged by vessells in storms, ice etc. and it is thought that when the water beats down through the sand, it would pass again into the river thro' those framed faggotts, without doing the staith or foundation any injury. And it is also imagined that this method of building them would be little more expense than the present, save the expense of the outer piles. To build them with stone would be very expensive, and they would not be effectual without they were lined perfectly over the top to prevent the water washing down through them. It has been the custom for the people imployed in the river, to moor their vessells to anything they can meet with along the side of it, without paying any acknowledgement. This I named to Mr Spofforth as being very improper, and not only loosing the Bishop of Durham's right as Lord of the Manor, but doing material damage at times to the staiths. With Mr Spofforth's advice I have directed Mr Dunn to demand anchorage and moorages, and also not to allow them to moor their vessells but in certain parts of the river.

I also viewed the clough, made last Summer at Howdendyke, which seems very well done. The expence of this clough and the money the wood was sold for, I could not then be informed of. The papers Mr Dunn observed with Mr Spofforth and he has promised to send them soon.

Sherburn 26th Decr. 1793 Arthur Mowbray.

Despite Mowbray's warning stone was continued with and the brother of P. H. Faber advised in 1806 that this be so. The year following Mr Wells wanted to alter the ferry landing to improve it for the public. Wells wanted £100 for the capital expenditure of this and £20 annually for maintenance. The Receiver at Durham, Mr Davidson, considered that half these figures would be enough. Faber interceded to offer a compromise,

... for on examining the staith I am of the opinion that it will require £50 to be laid out next Summer. And can not in its present form be kept up subsequently for £10 per annum. I found the staiths in the immediate of the ferry chiefly repaired by wellfooting them with stone. Cliff stone, as I recommended to Mr Davidson last year. And it gave me peculiar pleasure to observe the expense diminished and yet the work rendered more durable.[126]

C. H. Faber makes more observations some nine years after. This begins to introduce some of the modern staith names which are now attracting people's names. It also introduces a new descriptive word, *hob*, which was also found across the river at Swinefleet.

Remarks respecting the Staiths at Howden[127]

No 1 Ferry Staith

Nearly bares at low water, a few loadings of cliff load at the crown would do much good but it would be very adviseable to leave it to Mr Wells to uphold, even if we allow him £30 per ann. The wood work is very bad here & on a moderate calculation it would require £160 to repair this staith.

No 2 Howdendike

Nearly 14 feet deep at low water at the crown, this is good repair & appears to want no attention or addition.

No 3 Howdendike Clough

Much shacken, 8 feet deep at low water, cliff would now be of infinite service both at the lower wing & crown & would be a protection to itself as well as No 2 against the flood tide.

No 4 Kilpin Pike

7 feet deep at low water, in very good repair, the foundation is good, it only wants backing with cliff.

No 5 Deborah Staith

13 feet deep at low water, the low end is in bad repair & much exposed, wants winging off & plenty of stone. No less a sum than £800 would build this of stone, neither might it eventually answer any good end.

No 6 Rhodes Staith

3 feet deep at low water, in bad condition wanting both wood & stone.

No 7 Skelton Pike

5 feet deep at low water, wood work in good repair, but wants stoning round.

No 8 1st Hob

Threw in cliff here which is doing good, it wants more. The wood work is good.

No 9 2nd Hob

In bad condition, wants cliff very much.

No 10 Saltmarsh staith

In bad repair throughout, wings decayed, foundations of wood work gone, but there is a good base for cliff. Less than £150 will not repair this staith.

General observations made by Mr Ch. Faber in March 1816.

In addition to the needful considerations of the Bishop of Durham having only a Life Estate in the manor of Howden, there is an almost insurmountable obstacle to the real wellbeing of his Lordships staithes, it is this: that the Commissioners of Sewers can oblige the owners of them to have & hold a certain number of yards as set out for each staith in superficial good repair, then whilst the surface is paid attention to & will pass an annual survey the foundations are neglected & this will account for the very great want of cliff which is to be observed at the foot of almost every staith, the wood work of nearly all is in good repair, tho for durability neither the formation of the kids, nor the manner of joining them together are to be approved of, the kids are irregular in size & therefore do not pack well, & the stakes are joined by bindings, when these decay the support is lost; no bindings should be used, but each stake should be held by another with a hook to it [r] which when hooked and laid upon the kids acts as a cramp (made use of by masons in the cramping of stones together), though the general outside appearance of the staithes does credit

126. DUL ASC, HC, SN, bundle 1, item 11 (f).
127. DUL ASC, HC, SN, bundle 1, item 11 (d).

to Mr Dunn, yet the expense attending them appears greater than it ought to be. To put all the 10 staiths into complete repair at once probably not less than from £12 to 1500 [£1,200–£1,500] would be sufficient, less than £200 per ann. would afterwards support them. Mr G. Faber recommends it to me to adopt a sort of middleway viz instead of layout out all our money annually in kids & none in cliff, expend for a few years a good proportion of it in the latter; for if any of the Bishops staiths are bare at low water; much Yorkshire cliff would not therefore be required, & the white or Lincolnshire cliff which is procured at comparatively trifling cost would be under water as durable as time: this without increasing our annual expenditure we should be gaining as a support at the foot of our staiths, which is what they chiefly want. Perhaps it might be the best place to do one or two staiths fully & sufficiently every year leaving the remainder on their present system.

There is one other report on the staiths from about this period which is undated.[128] Part of Howdendyke staith was repaired by Mr Singleton where he moored his boats. He paid £5 a year for use of the staith. Saltmarsh staith had a vessel moored to it and this staith was enclosed by a day fence. This survey indicates that the staith's upper surface was covered with a type of cement. The winters were considered by the oldest person to be particularly destructive to the staiths. It was recommended that a person be appointed to prevent wilful damage and that to this end rewards be offered.

The work of stoning the staiths did get further. A short survey of 11th October 1823[129] states that Howdendyke Ferry staith was finished by Robinson. Kilpin pike staith was also finished by him and stoned by Mr. Wells. This had required 540 tons. Skelton great staith was similarly done with 2,280 tons. Booth staith was finished by Robinson and would require 120 tons of stone to complete it. Presumably Robinson did the wood framework. Saltmarsh Hobbs was costing £482 19*s.* 0*d.*[130] A bill also exists for Captain Keldrick bringing 60 tons of cliff stone at 1*s.* 3*d.* a ton for ten days in 1826 from Barton.[131]

These descriptions of staiths in Howdenshire in the first quarter of the nineteenth century give a picture of them whereby the staith structures can still be discerned at the end of the twentieth century. The best example is found immediately upstream of Howdendyke No. 2 jetty, first described in 1520 as either the west ebb staith or the great staith. On present six inch Ordnance Survey maps it is described as Bishop's Staith. The surviving structure has no longer any apparent use; it forms neither part of the flood defence barrier nor is it used for any staith function or cargo purpose. Where it has not crumbled there is a near vertical wall of dressed stone rising out of the river water. This is semicircular in shape, backing onto the land itself. It rises with a slight batter some 25 ft and has a large platform on top of 30 ft across. Another good example is found at Saltmarsh but this is not the original structure, having been modified during the 1980s. Again, it has no staith function, merely supporting a navigation light and is known as Hall Stone Heap. Many of the other staiths can be identified as low mounds of scattered stone, disintegrating into the tide and mud.

The function of Howdenshire staiths has been taken over and augmented by the four berths at the three Howdendyke jetties. The transition from using staiths to jetties is not clear. Three ingredients are known which must have had some influence in that shift: (1) The creation of the port of Airmyn, (2) The shift from river staiths at Hull to the Legal Quay or enclosed dock, and (3) The suppression by Goole Docks of downstream staiths.

128. DUL ASC, HC, SN, bundle 1, item 11 (c).
129. DUL ASC, HC, SN, bundle 1, item 11 (i).
130. DUL ASC, HC, SN, bundle 1, item 11 (g).
131. DUL ASC, HC, SN, bundle 1, item 11 (h).

Other Vale Of York Staiths

Ownership by a long-established institutional landlord of Howden Manor has resulted in both a profusion of good, well built staiths there and of the records of them surviving. Elsewhere on the estuary there are scattered examples of staiths having existed or still existing. Only a few sources of their records have been located: in the Hatfield Chace Corporation records, in the Gainsborough Manor records, in papers of the major landowner at Airmyn, in maps and charts of the river for the very many small places along it.

All of the flat land area south of the Ouse, west of the Trent and east of the Don came under the jurisdiction of the Hatfield Chace Corporation. This Court of Sewers, being formed as late as 1635,[132] was quite powerful as it exceeded the power of the manor courts, which was normal, but also it had permission to divert rivers — which it did. Again, this particular archive is complete, running without a break from its inception until its function became transferred to the precursors of the present Water Companies in 1941.[133] In its work of eventually diverting the Don can be found the possible formation of the staith at Goole. Whilst the Court sat at Turnbridge on the 8th September 1637, they directed that it be made by the participants before the last day of March,[134] Richard Riley, the keeper at Goole, to have 20 nobles a year, to be paid quarterly.[135] This may have been for two staiths.

Echoing the profusion of staiths just across the river in Howdenshire, a note here indicates that there are 'four staiths or jetties'[136] in Hook. They were in decay and the Court commanded the Lord of Hook to repair them before the next court upon pain of £100 fine. Here at Hook, the local squirearchy were to build 'one great staith of six score yards in length and seven score yards in breadth'.[137] These locals, Sir Phillip Monckton, Sir Francis Monckton, Mr Philip Saltmarsh, Thomas Eastoft, Arthur Richard and Thomas Stephenson obtained this by petition to the King in the July of 1646. It would appear that this staith was built. After 1697 the Lordship of this manor rested with the Lord Mayor and citizens of London. They were fined £200 'for not repairing Queens Stayth, or New Stayth'.[138] However, by 1703[139] the inhabitants and landowners of Hook, Airmyn and other places adjacent made a complaint that diverse breaches were made in Hook. By this means the water had overflowed upon the country and done great damage.

By the way the records read, it would appear that the staith in any one place was chiefly for the locals' own use. That the ownership may have been held by a very distant person such as the Bishop from another county was a facet of declining feudalism. That the property rights in them may have been a commodity, as it was at Hull,[140] is just as likely. The cargo output of the River Aire in the late seventeenth century was becoming to be of such a quantity that the two towns of Wakefield and Leeds were to combine in their effort to secure a better navigation. Both Turnbridge,[141] at the confluence of the old Don and Aire, and Rawcliffe slightly lower down the Aire were early transshipment points for the West Riding. The Rawcliffe staith was owned by Mr William Battle of Howden.[142]

132. NU SC, HCC 6011 f. 1. N.B. The pagination of vol. 1 changes.
133. NU SC, Hatfield Chace Corporation 2nd Deposit Catalogue p. 1.
134. NU SC, HCC 6001 f. 123.
135. NU SC, HCC 6001 f. 181.
136. NU SC, HCC 6001 p. 16.
137. NU SC, HCC 6001 p. 20.
138. NU SC, HCC 6004 f. 24.
139. NU SC, HCC 6004 f. 84.
140. Lincoln Record Office, T d' E /G/2/17.
141. Institute of Civil Engineers, Tqv 65.
142. NU SC, HCC 6004 f. 130.

Turnbridge had a dual advantage as a transshipment point. On the one hand it was at a river confluence and on the other it lay on the ancient road of Moregate,[143] which led from Ferrybridge to Adlingfleet. Cornelius Vermuyden, as the chief participant in the beginning of the Hatfield Chace Corporation, closed the Don's outlet through Turnbridge. This is likely to have led to Rawcliffe gaining some ascendancy, as it too was on this road and had the minor advantage of being lower down the main river. However, that was not enough, for the success of the early Aire and Calder Navigation Company[144] was such that they needed a proper transshipment port of their own. Airmyn, on the Aire at its confluence with the Ouse, was a suitable place for the maximisation of river craft meeting sea-going craft. It lay over a mile from Moregate but the nearby ferry over the Ouse at Booth was both well established and well known.

On January 1st 1744, six experienced and skilful captains described Airmyn in glowing terms, perhaps as an advertisement for the port. They said that it 'is and likely to be one of the most commodious inland harbours in the North of England'.[145] Airmyn already had a staith but the wording indicates a movement for better facilities. The Lordship of this manor had passed from Sir Arthur Ingram into the hands of Lord Northumberland. Northumberland and Peter Birt entered into an agreement together on August 24th 1759 to build ten staiths at Airmyn.[146] The staiths were to be in Great Airmyn for the security of vessels, and to be made from timber provided by the Lord. Peter Birt, whilst building and managing the port, was to use his utmost endeavours to get the business then carried on at Rawcliffe to be transacted at Airmyn. 'Peter Birt to have sufficient foreshores for landing, laying up goods (corn, coals etc). The quantity and yearly value to be determined by Mr Seymour in or about October.' Two years later, in the April of 1761, Lord Northumberland was still desirous to encourage the navigation at Airmyn with further buildings.[147] By 1775, the port was still booming sufficiently to find staiths being both repaired and being made at Little Airmyn, across the river.[148] The Aire and Calder proprietors were paying £63 11*s.* 0*d.* rent for warehouses, shores, ways etc.[149] Repairs in Little Airmyn varied from £30 to £100 per annum[150] and some stoning had been done by 1786.[151]

Ships and Cargoes

The unfolded story of staiths at Hull and York is fairly full, in that there is clear evidence of: the staiths themselves; the ships which came there; and of the cargo which was moved over the staith betwixt ship and shore. Elsewhere on the estuary evidence is more fractured, and it has to be extrapolated so that the available records of maritime activity can be juxtaposed with either of the phantom elements. For example, there is only a little evidence of staith existence at Airmyn but evidence of port activity not explicitly connected with staiths is greater. Is it reasonable to state that the ships and cargoes which are recorded as being part of the Airmyn scene are definitely connected with staiths? Another small port, not dealt with in any detail, is Gainsborough on the Trent. This port is significant because it commands the north Midlands. Staiths existed here, but how firmly can it be stated that ships used them or that cargoes were moved across them? Conversely, to suggest anything else would be ludicrous.

143. Public Record Office, MPC 56 and DL 42/12 ff. 29v-30r.
144. R. W. Unwin, The Aire and Calder Navigation, pt 2, *The Bradford Antiquary* (1967), pp. 182–85.
145. Public Record Office, Rail 800/324.
146. Beverley Record Office (BRO), DDSD 151.
147. BRO, DDSD 152.
148. BRO, DDSD 156.
149. BRO, DDSD 160, first book, note.
150. BRO, DDSD 160, second book, ff. 23, 26.
151. BRO, DDSD 160, third book, inside front cover.

What other port types existed? The abundance of Landing Lane as a street name indicates at least one other. Remnants can still be seen just above Boothferry Bridge and at Howdendyke. One, intact and still in use in Hull, is known as the Horsewash. Landings require very good engineering, which may not have been perfected in the area any earlier than for staith technology. Landings in most muddy rivers are very prone to siltation, even a very thin veneer of mud renders their surface difficult to use.

The abundance of information about staiths in Howdenshire and on its opposite river bank leads to the observation that there is negligible direct knowledge of their use. Therefore, the following attempt has been made to garner at least some associated material.

Fishgarths are the local term for weirs in the river with which to catch salmon. They were all over the length of the river and extended out into it, sufficiently so for the legal width of the river to be considered only 40 ft.[152] In reality, dependent upon where exactly the measurement is made, the width is at least four times that figure. The fishgarths were a perennial problem to passing ships, so much so that the result could be total loss of ship and cargo: at Howkelathes[153] (Hook) by Robert Clerk on Friday 28th June 1392. At Skelton: by John Daudesson, Robert Duffeld and Simon de Waghen to the value of £60 on Wednesday 26th July 1391; of three unknown men by John Spencer to the value of £100 on Tuesday 22nd September 1377; of three unknown men by John to the value of £60 on Friday 5th October 1375; of two Austin friars by John York of Swinefleet to the value of £80 on Wednesday 25th June 1376. At Yaldeflete (Yokefleet) to the value of £40 in 1390; at Barmby to the value of £20 in 1379; at Saltmarsh in 1378; at Selby of two ships to the value of £166 6*s.* 8*d.* in 1386; at Turnham Hall to the value of £100 in 1375; at Reedness to the value of £40 in 1392; at Barlow to the value of £40 in 1378.

The main river was not the only destination; free passage to Stamford Bridge for ships and boats with victuals and other merchandise became obstructed in 1356.[154] These ships passed between Airmyn and York by sail or otherwise.[155]

Whilst the repair of staiths and riverbanks fell to the relevant Lordships, another element to this is where the bank was also the King's Highway. It was so between Ousefleet and Airmyn in 1362[156] and the tenants whose land abutted the river ought from time immemorial to repair the street. At this time the breach was so severe and the inhabitants so impoverished that it received the direct attention of the King and was placed in the Secret Bag. The liability could not be spread any wider than it was and repairs were estimated to require seven years for completion; a full 17 years later, in 1379,[157] they were still under way.

The staiths themselves were occasionally the cause, or alleged to be, of damage to ships. In the mid-sixteenth century, a vessel was damaged on Asselby staith.[158] John Ardingfeld, reported to be sober and no drunkard, was a good master of a keel from Fishlake. Despite his skill and cunning, the wind and tide set him onto the staith. He had sailed the Ouse for 21 years and passed this particular staith many times. He stated that the staith had been in a dangerous and parlous state for more than a month before.

A very similar but more legible Note of Protest is found in 1711 with another ship being damaged upon Wistow staith.[159]

152. C. T. Flower, Public Works at Medieval Law (PWML), vol. II, *Selden Society*, vol, p. 267.
153. C. T. Flower, PWML, pp. 253–55.
154. C. T. Flower, PWML, p. 276.
155. C. T. Flower, PWML, p. 285.
156. C. T. Flower, PWML, p. 285.
157. C. T. Flower, PWML, p. xliv, 330.
158. Borthwick Institute, York, Admiralty Court, Cause Papers, Box 1 paper 1.
159. Borthwick Institute, York, Admiralty Court, Cause Papers, Box 1 paper 3.

William Spinks and Master of the good keel or vessell called Mayflower. Joseph Hodgson, George Hall and William Woolworth mariners or watermen of the said Spinks Company. Namely that upon Monday, being the 5th day of May 1711, the said keel was lying etc. ladon at the port of Kings[ton] upon Hull with grocorys and other goods for York. And that day came from Hull intending their course for York craine or key. And in their way at Wistow landing place, on the 7th of the said May, the wind at north east, the said keel being halled by men upon the shore, there blew a fresh gale of winds. Such, together with the tide putt the said keel on shore and drove her against the staith heads there, and thereby staved her. Notwithstanding that the said Master had four men assisting him more than what were absolutely necessary for the working the said vessell. And that the said keel or vessell could by no means whereby kept from such damage (this the said Master and all his servants usd their utmost endeavour to avoid the staving of the said keel). And further those attestants say that the staving the said keel happened in manner aforesd and thereupon they do protest against the said wind and tide and also against the said landing place and staith heads for the damage etc.

Staiths Today

The Ouse and Trent figure in Magna Carta as among the four great rivers of the Kingdom. As such, their safe navigation was thereby assured by agreement. That may be why there is little evidence of any early pound locks along their courses. However, in the early seventeenth century records of the Hatfield Chace Corporation, there is evidence of a type of a lock or Soss at Misterton between the Idle and Trent. At this time also, Vermuyden built doors across the mouth of the Don to keep tidal water confined to the Ouse. The Aire and Calder navigation at the close of the seventeenth century set up what may have been the earliest pound locks upon the Humber estuary. The technology thereby developed led directly to the building of Queen's Dock off the River Hull in 1778 in furtherance of the needs of a Legal Quay.

This first genuine dock upon the waterway was coupled to a growth in trade and so the many staiths did not go into decline at that time. The staiths along the river Hull became described as Sufferance Quays and enjoyed prosperity into the late twentieth century. The staiths in Hull exist as a long line of wooden jetties all joined together. Ships and barges still moor to them but few cargoes pass over them. There are still streets identifiable with those of the medieval period and some of them bear the appellation staith. Two York staiths are readily identified today, King's and Queen's staiths opposite one another at either end of Ouse Bridge, to which the occasional vessel still moors.

The success of both the Hull Dock Company and of the Aire and Calder Navigation Company complement each other, the one being a conduit to the other's hinterland. With growing trade, Airmyn did not survive as a transshipment point between the West Riding and Hull and temporarily Selby was used until enduring success was found in the creation of Goole Docks. The success of this artificial outlet was directly at the expense of nearby staiths. The Act enabling a canal to be built eastwards to the Ouse and a basin there was for just that purpose. The Act did, though, make the Aire and Calder a powerful company. This power, combined with the simple advantage that an enclosed dock has over any river berth, began the eclipse of the local staiths.

A combination of the status of the Aire and Calder and trade still booming, enabled Goole to break the Customs monopoly enjoyed by Hull. Ships were then, for the first time in over four hundred years, lawfully permitted to trade between a place on the estuary, other than York or Hull, and a foreign port. Goole then became an attractive and viable port which, combined with the newly harnessed power of steam, led to its dominance of trade in the immediate area. In 1884 another Act was granted to the Aire and Calder and this enabled them to actively suppress those staiths on the Ouse below Goole.

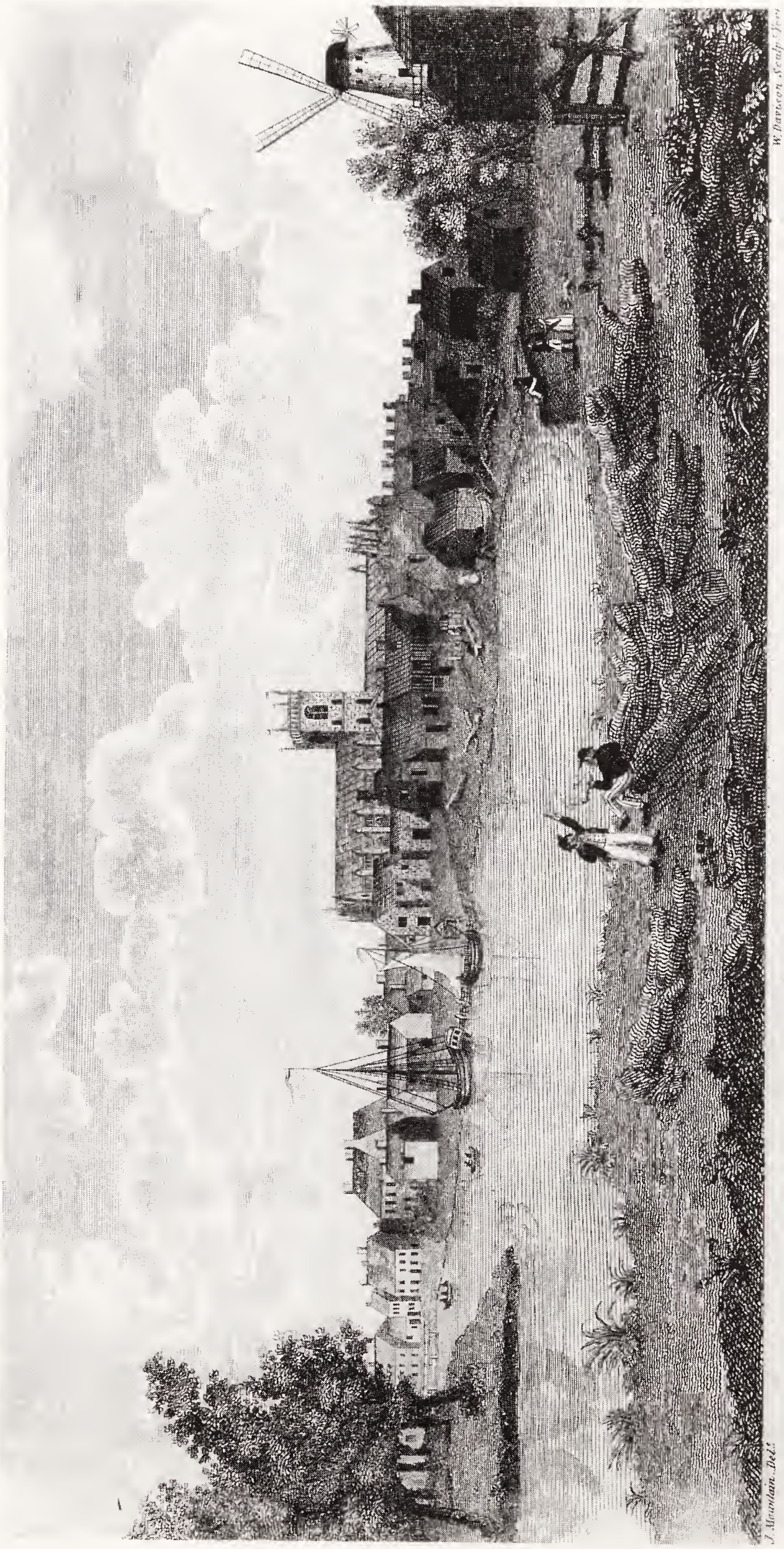

Fig. 4. A North View of Selby, 1st January 1800; reproduced courtesy of Beverley Record Office, DDSE 4/14.

The purpose of this suppression was to concentrate as much trade as possible within the confines of Goole Docks where the Aire and Calder had power to generate tolls. The suppression was not complete; farmers were permitted to use their adjacent staiths for their produce. This activity was still under way in the 1950s but has not been evidenced since. The Aire and Calder did meet opposition to their plans in the form of Sir Philip Saltmarsh. He fought the Aire and Calder's plans as far as the House of Lords and eventually a settlement was reached out of court. This enabled Saltmarsh to have his shore of the Ouse at Saltmarsh left intact and unaltered by the Aire and Calder. This has led to much of the north or left bank of the Ouse being devoid of training walls. At Saltmarsh two staiths stick out into the river. Over the years they have received attention, yet retain much of the character that they were given when first stoned.

Staiths on the Ouse were drawn in the nineteenth century supporting a mast and derrick. A fine drawing was recently unearthed of a crane on Lords Staith at Gainsborough. Seventeenth-century drawings exist of cranes at the staiths in Hull and another has recently emerged of the well documented crane at York. When the Humberhead staiths ceased to be used cannot be precisely determined. They were used within the present life of some of the old river men. As the rise of steam-powered vessels brought about some demise of the staiths, a comparison can be drawn to diesel-powered ships bring about a revival of their modern successor — the jetties.

Abbot's Staith at Selby lies under a modern grain wharf. This berth is used by ships of about 1,000 tonnes. At Howdendyke, slightly bigger ships of about 1,500 tonnes, tie up to three modern jetties. In this area there is one surviving good staith and other decaying sites; across the river in Hook not even their site survives. The river itself is a positive agent of destruction. Not only is there the strong flood and long ebb but there is frequently a destructive bore. In addition staiths are at the interface of water and land which flexes itself semi-diurnally. Frosts this far inland are also very destructive.

Staiths on the tidal waterway are not now part of the mercantile activity; some are used to support navigation lights, some remain on a map as a place name, but most are forgotten. Beyond the tidal range, within the Yorkshire coalfield, staiths were used to get coal from the pits to the canal and from the canal to the power stations. Relics of this survive and it is in this use for coal where staiths achieved their greatest fame. The coaling staiths of Northumberland and Durham were even evoked by John Masefield, the Poet Laureate. In this guise, the word journeyed across the world as far as New Zealand. At Dunston on the Tyne a full staith is preserved for posterity. In Yorkshire we have to rely on street names as a testimony of what once existed.

Many of the staith sites are in the custody of Associated British Ports. On the one hand they erect new streets with an old name, as at Bobbers Staith in Hull in 1995; and on the other, in the same year, they tear down Whitgift jetty on the site of its ancient predecessor. In so doing, the mariner is deprived of a mark which has guided him for at least a millennium.

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DISCORD AND STABILITY IN AN ELIZABETHAN PARISH: JOHN OTES AND CARNABY, 1563–1600*

By Peter Marshall

The English parish clergy of Elizabeth I's reign can be seen to comprise, in the memorable phrase of Patrick Collinson, a 'professional minority' and an 'incompetent majority'.[1] As successive archbishops of York were only too well aware, the minority in their diocese was particularly small, and the majority disproportionately large. Quite clearly in the latter category was the subject of this paper, John Otes, who for 40 years or so served as minister in the unprepossessing parish of Carnaby near the North Sea coast in the East Riding of Yorkshire. Otes's story is a rather unedifying and undistinguished one, which can be told largely because he regularly came to the attention of the authorities for petty disciplinary offences, and because he several times found himself embroiled in proceedings in the consistory court in York. Yet it is one that contains many points of interest for the student of the Elizabethan Church. It portrays vividly the crushing financial difficulties experienced by a number of the clergy, and the effects this could have on lay-clerical relations in the parishes. It illustrates how fundamentally ineffective the disciplinary mechanisms of visitation and citation could be in bringing about a real and lasting improvement in the behaviour of recalcitrant clergy, but at the same time it reveals how the legal system could successfully be manipulated by the laity to curb the pretensions of an unreasonable pastor. More generally, it exemplifies how the ramifications of the problems of clerical manpower and recruitment, so acute in Elizabeth's first decade, could still be felt at the very end of the reign, and the implications of this in terms of the so-called 'professionalisation' of the parish clergy, and the progress of the Reformation in the North.

John Otes's association with the parish of Carnaby long antedated his institution to the vicarage there in 1568. If he was not himself a native of the parish, he certainly had close kinsmen who were. On his deathbed in early 1600 Otes expressed a desire to be buried in the chancel of the parish church of Carnaby 'in the sepulcher of my cosin James Otes'.[2] Our first reference to a John Otes at Carnaby comes in the inventory of church goods prepared by the Edwardian commissioners in 1552, which listed him as a churchwarden.[3] It is possible, though unlikely, that this is the same man as the later vicar, who was almost certainly not a married householder at this time. More probably, this churchwarden was his father or an uncle. There is a strong possibility, therefore, that Otes had actually grown up in the parish he was later to be presented to as vicar. This is reinforced by the evidence of two witnesses in a court case of 1583–84, who claimed to have known him for 26 and 30

*. I am grateful to Professor Bernard Capp, Dr Steve Hindle and Dr W. J. Sheils for their comments on an earlier draft of this paper.

1. P. Collinson, *The Religion of Protestants: The Church in English Society 1559–1625* (Oxford, 1982), pp. 128–29.

2. B(orthwick) I(nstitute, York), Reg. 31, fol. 142^{r}. This may have been the James Otes of Fraisthorpe who made his will in Feb. 1592, requesting burial in the churchyard (not chancel) of Carnaby: BI, Prob. Reg. 25, fol. 1011^{r}.

3. *Inventories of Church Goods for the Counties of York, Durham, and Northumberland*, ed. W. Page, Surtees Society, 97 (1897), p. 27.

years respectively.[4] What can be firmly established is that by August 1563 at the latest, when as John Otes, clerk, he witnessed the will of Robert Lightfoot, Otes was being employed as curate at Carnaby by vicar Anthony Ivesonne.[5]

Ivesonne was uniquely distinguished among the mid-Tudor vicars of Carnaby, and therefore, almost by definition, an absentee. From 1539 to 1556 the vicarage was occupied by James Todde, whose promotion to the benefice was due to the good offices of William Todde of Ripon and John Dyghton of Batley, who together had purchased a grant of next presentation to Carnaby from the then patron, Bridlington Priory.[6] Todde's successor, Henry Salven, was instituted to the benefice in July 1556, but was dead before November. His brief incumbency set the seal upon over three decades' service as an unbeneficed priest in the parish: since at least 1526 Salven had served as curate at Carnaby's dependent chapel at Fraisthorpe.[7] By contrast, Anthony Ivesonne, vicar from 1556 to his resignation in 1568, seems positively cosmopolitan. Ivesonne was a vicar choral of York Minster from the latter years of Henry VIII to his death in 1586. He also served the cure in two York city parishes, and was rector of Burghwallis in the West Riding, which he held in plurality with Carnaby.[8] It is unlikely that Ivesonne ever personally served his cure at Carnaby, and he seems to have employed a succession of curates: Miles Woodhouse and Edmund Hessey held the post before John Otes.[9] Like Otes, Hessey seems to have been a local man. Giving evidence in a breach of promise case involving two Carnaby parishioners which came before the York consistory in 1558, Hessey admitted that one of the parties was his cousin.[10] He appears, moreover, to have been a dutiful and popular curate, witnessing all seven extant Carnaby wills made between October 1557 and October 1558.[11] Three of these testators requested prayers or masses from him, and a fourth left him 12*d.*, 'desyringe hym to be frendly to my sonne Thomas'.[12] Hessey serves as a reminder, if any were needed, that good pastoral care did not depend absolutely on the residence of the incumbent, and that the non-graduate, unbeneficed clergy were not necessarily the parasitic drones of Protestant polemic.

John Otes succeeded Hessey as curate some time between October 1558 and August 1563.[13] Whether he had held any previous position in the Church is uncertain; conceivably this was his first ecclesiastical post and his entire ministry, indeed entire life, was spent in this one small parish. It was later claimed that Otes had been ordained during the reign of Mary, and though no record of his ordination has been found in the York episcopal registers or institution act books, there is no real reason to dispute the claim.[14]

4. BI, CP G 2102; 2123.
5. BI, Prob. Reg. 17, fol. 291^{r}.
6. *Fasti Parochiales vol. III; Deanery of Dickering*, ed. N. A. H. Lawrance, Yorkshire Archaeological Society Record Series, 124 (1967), p. 19.
7. *Ibid.*; W. Brown and T. M. Fallow (eds), 'The East Riding Clergy in 1525–6', *Yorkshire Archaeological Journal*, 24 (1917), p. 78.
8. *York Clergy Wills 1520–1600: I Minster Clergy*, ed. C. Cross (York, 1984), pp. viii, 90, 93, 120, 140–41; *York Clergy Wills 1520–1600: II City Clergy*, ed. C. Cross (York, 1989), p. 67; Purvis, J. S. (ed.), *Tudor Parish Documents of the Diocese of York* (Cambridge, 1948), p. 24.
9. Woodhouse witnessed a Carnaby will in April 1557: BI, Prob. Reg.15(1), fol. 314^{r}. Hessey appears to have been active in the parish from at least October 1558: BI, Prob. Reg. 15(2), fol. 62^{v}.
10. BI, CP G 751.
11. BI, Prob. Reg. 15 (2), fos 67^{v}, 127^{v} (bis), 128^{v}, 129^{r}; 15 (3), fos 129^{r}, 261^{v}.
12. BI, Prob. Reg. 15 (2), fos 128^{v}, 129^{r}; 15 (3), fol. 261^{v}; 15 (2), fol. 127^{v}.
13. The termini are provided by Hessey's last testamentary appearance, and Otes's first: BI, Prob. Reg. 15 (3), fol. 261^{v}; 17, fol. 291^{r}.
14. BI, CP G 3220. Conceivably, Otes was ordained outside the diocese of York, though this seems *prima facie* unlikely: the mid-Tudor period is characterised by considerable confusion in the record-keeping of the diocese: D. M. Smith, 'The York institution act books: diocesan registration in the sixteenth century', *Archives* 13 (1977–8), pp. 171–79.

How exactly Otes came to Ivesonne's attention is also unclear. When, a few years later, another East Riding curacy, that of Shipton, became vacant Richard Gill, 'hearinge that the chappell of Shipton was destitute of a curate, spoke to this examinate [the rector of Cowlam] and requested him to be a meanes for the placinge of him in the same chappell ... whereupon this examinate wrote a lettre or two in Gill's behalfe'.[15] Perhaps Otes similarly persuaded some substantial local figure to petition Ivesonne on hearing of the death of Edmund Hessey. No less intriguing is the question of how Otes managed to get himself appointed vicar on Ivesonne's resignation in 1568. The advowson of Carnaby had belonged to the most substantial monastic establishment in the East Riding, the Augustinian Priory of Bridlington, but it came into the hands of the crown in early 1537 when the Prior of Bridlington was attainted and executed for his part in the Pilgrimage of Grace.[16] As we have noted, a late monastic grant of next presentation robbed the crown of its right to present in 1539, but the next three vicars Salven, Ivesonne, and Otes were all royal nominees. In practice, crown presentations to benefices valued at less than £20 a year were in the hands of the Lord Keeper of the Great Seal, who of necessity had to rely on recommendations from persons with some knowledge of or interest in the local situation. It is, in fact, possible to establish who forwarded Otes's name, as in the 1560s Lord Keeper Bacon kept a record of successful petitions and commendations. This shows that Otes's patron was none other than the dean of York, and future archbishop, Matthew Hutton, a juxtaposition of names that in view of subsequent developments seems decidedly ironic.[17] Most probably Hutton got Otes's name from Anthony Ivesonne, with whom he may have had regular contact in the Minster. The process leading to the appointment highlights the fact, however, that mere curates such as Salven and Otes had a better chance of acquiring a benefice in the 1550s and 1560s than at any other time in the sixteenth century. The successive dissolutions of monasteries and chantries, as well as the continuing uncertainty as to the status and prospects of the clergy, had by the middle of the sixteenth century resulted in a major recruitment crisis to which the early Elizabethan Church fell heir. In 1525, no fewer than 587 secular clergy were resident in the East Riding of Yorkshire; by 1552 this number had slumped to 185.[18] Half a century earlier, John Otes might have had to resign himself to a life's work as a lowly waged chaplain; in the late 1560s he could realistically aspire to a benefice. To Anthony Ivesonne, Carnaby represented a welcome source of supplementary income for a career firmly focussed upon the Minster in York; to John Otes it may have seemed the summit of his ambitions.

Awareness of his good fortune did not, however, predispose Otes to the exercise of a ministry characterised by thankful humility: his appointment precipitated a protracted struggle with the parishioners that would dog his entire incumbency. The background to this was a question of resources. Carnaby was a poor living in a poor area. In 1535, at a time when £10 a year has been estimated as the acceptable minimum to support an incumbent, it was valued at £7 8*s.* 10*d.*, considerably less than the unimpressive

15. *Select Sixteenth Century Causes in Tithe*, ed. J. S. Purvis, Yorkshire Archaeological Society Record Series, 114 (1949), p. 132.
16. C. Cross, *The End of Medieval Monasticism in the East Riding of Yorkshire*, East Yorkshire Local History Series, 47 (1993), p. 26.
17. British Museum Landsdowne MS 443, fol. 169^{v}. I am greatly indebted to David Lamburn for supplying this reference. On the role of the Lord Keeper, see R. O'Day, 'The ecclesiastical patronage of the Lord Keeper, 1558–1642', *Transactions of the Royal Historical Society*, 5th series, 23 (1973), pp. 89–107.
18. P. Marshall, *The Face of the Pastoral Ministry in the East Riding 1525–1595*, Borthwick Paper No. 88 (York, 1995), pp. 3–4.

average for East Riding vicarages of £9 1*s.* 3*d.*[19] The sixteenth-century vicars of Carnaby were archetypal victims of the system of appropriation, which had siphoned off the major part of parochial income into the hands of religious houses, and which despite the pleas of reformers to return impropriated tithes to the church, continued unchanged after the dissolution to the benefit of largely lay rectors.[20] In Carnaby's case, the rectory was retained by the crown until 1609, but the rectorial tithes were leased to a succession of laymen.[21] Otes may well have been under far greater economic pressure than his predecessors as vicars of Carnaby. The rampant inflation of the mid-Tudor years and associated rise in agricultural prices may have benefitted rural rectors and lay lesees with considerable amounts of grain to sell, but this was of little comfort to vicars in appropriated livings. Tithes other than those of grain had frequently been commuted for a money payment, and as the Carnaby case will exemplify, price inflation provided an almost irresistible incentive for tithe-owners to seek to overturn such customary *modi decimandi* and reinstate full payment in kind. Moreover, unlike any of his immediate predecessors, Otes had a wife and family to support, having married probably in the early 1560s.[22] To help maintain them, Otes took on the curacy of the chapel of Bessingby in the neighbouring parish of Bridlington, in addition to his own parochial charge, though the stipend paid by the crown for this was a mere £5 6*s.* 8*d.*[23] Even some of those whom Otes took to court over tithes recognised him to be 'pore and nedy'.[24] Years of periodic litigation, however, would do little to alleviate his situation, and probably much to exacerbate it.[25]

The cause of trouble between Otes and the people of Carnaby was the innocent-seeming gorse bushes or, as they were known in Yorkshire, whins, growing principally on the three areas of moorland in the south of the parish known as the East Moor, West Moor and Rowgham Moor. Whins appear to have been a versatile commodity, providing material for fuel and fencing, and winter fodder for animals.[26] In 1583, a cartload of whins was said to be worth 2*s.* 4*d.*[27] and the right to cut and gather whins was shared between the lord of the manor and the tenants.

The matter at issue between Otes and his parishioners was in principle a fairly straightforward one: was the vicar, as he claimed, entitled to receive the tithe of whins in kind, or was he, as his parishioners claimed, obliged by custom to accept a cash payment in lieu? There is little doubt that Otes had thoroughly acquainted himself with the tithing arrangements in the parish some years before he became its vicar. On obtaining the

19. F. Heal, 'Economic Problems of the Clergy', in F. Heal and R. O'Day (eds.), *Church and Society in England: Henry VIII to James I* (1977), pp. 103–04; Lawrance, *Fasti Parochiales, Dickering*, p. 19; *Valor Ecclesiasticus temp. Henrici VIII*, ed. J. Caley and J. Hunter, Record Commission (1810–34), vol. v.

20. For contemporary complaints about impropriation, see P. Marshall, 'The Dispersal of Monastic Patronage in East Yorkshire, 1520–1590', in B. Kümin (ed.) *Reformations Old and New: the Socio-Economic Impact of Religious Change* (Aldershot, 1996).

21. *The Victoria History of the County of York, East Riding*, ed. K. J. Allison, 6 vols (London-Oxford, 1969–1989), ii. pp. 127, 129.

22. In 1575, Otes's son, Peter, was said to be eleven years old: *Archbishop Grindal's Visitation, 1575: Comperta et Detecta Book*, ed. W. J. Sheils, Borthwick Texts and Calendars, 4 (1977), p. 85.

23. Otes is first explicitly recorded as curate of Bessingby in 1586, though the appointment is likely to be earlier: BI, V. 1586 CB, fol. 162^{v}; *VCH East Riding*, II, p. 20. In 1590 he claimed to have held the cure for thirty years: BI, HC CP 1590/1.

24. BI, CP G 3371.

25. Otes appears untypical among Yorkshire vicars in using the courts to recover lesser tithe. The extent of legal fees compared with the relatively small expected return meant that most clerical suits were instigated by rectors and better-off clergy: W. J. Sheils, ' "The Right of the Church"; the Clergy, Tithe, and the Courts at York, 1540–1640', in W. J. Sheils and D. Wood (eds), *The Church and Wealth*, Studies in Church History, 24 (Oxford, 1987), pp. 237, 251.

26. *Oxford English Dictionary* (2nd edn, 1991), s.v. 'furze', 'gorse', 'whin'.

27. BI, CP G 2119.

benefice in 1556, the absentee vicar Anthony Ivesonne had made a twenty-one year lease of the vicarage to Thomas and Richard Hessey, presumably kinsmen of his curate, Edmund. They in turn leased it in around 1563 to John Scowthorpe, who a couple of years later let it to the curate, John Otes. Otes's lease excluded the tithes of wool, lambs and hay, but it did include whins, and at this time, Otes was later to claim, whins were paid in kind, or if any composition were made, this was 'at there own pleasure', not the result of prescriptive precedent.[28] In fact, it seems clear that in the late 1560s tithe whins in Carnaby were paid both in money and in kind, a reflection of the fact that two distinct groups were liable for them: the parishioners themselves, and the so-called 'strangers' who had taken leases of the whins on the East Moor and Rowgham Moor from the lord of the manor, William Hilton.[29] It was one of these 'strangers', Edward Steryng, whom Otes, as curate and farmer of the tithes, first sought to sue for withholding his dues for whins growing on the East Moor. Nearly 20 years later, Steryng's servant recalled how after 'sendinge to Yorke for counsell' his master saw little hope of success at law, paid a sum of money for the arrears of tithe, and agreed thereafter to pay in kind, 'leavinge everie tenthe waine lode for the tiethe'. The arrangement was accepted and followed by the other lessees, *viz.* John Dynely, John Storie of Bridlington, and Anthony King, vicar of the neighbouring parish of Boynton. Otes was undoubtedly cheered by his victory in this first round of the battle for tithe whins, and after his installation as vicar he commenced a suit in the York consistory against several of his own parishioners: William Lightfoot, Henry Daile, Robert Norham, and Robert Brewster. These, then and later, insisted that Otes's predecessors had been content to receive 3*s.* 4*d.* annually at Easter in lieu of the tithe whins. The judge in the case, John Rokeby, chancellor of York, followed hallowed and sensible canonical practice in directing the parties to take their case to the arbitration of a local JP, Walter Strickland of Boynton, to 'lett him agree them att home.' In addition to the litigants, at least a dozen parishioners went to Boynton to petition Otes to call off his suit and had the satisfaction of hearing Strickland pronounce them to be in the right. Robert Norham, later recalled how the parishioners had

> alledged ther custome of payment of tenn grotes a yere for ther tythe whynnes, and no whynnes at all in kynde, which appeared to be true by the testymony of dyvers then presente, yet the vicar being very earnest to have his chardges alledginge that it had coste him muche, Mr Stryckland willed them to gyve him x s to be quyett, although he had no right to it ...

Although Strickland had made clear that the sum was no more than a face-saving, good-will gesture, the parishioners were at first reluctant to pay. The impasse was broken when one of their number, Ralph Vycarman, agreed to advance the money on behalf of the others, Strickland apparently assuring them 'that they should have it againe if ever the vicar troubled them afterwardes for tythe whynnes in kinde'.[30]

For most of the 1570s, the issue remained out of the courts. When the case resumed, Otes predictably claimed to have taken whins in kind throughout this period; his opponents that he had received the 3*s.* 4*d.* annually.[31] There was some truth in both claims: the lessees of whins on the moorland continued to pay in kind, while the cash payment on behalf of the parishioners seems to have been irregularly forthcoming: Otes's staunchest opponents admitted that 'the some of iii*s.* iii*d.* was sometymes unpaide by the space of ii or more yeares together'.[32] The erratic and disparate nature of these

28. BI, CP G 2117; 2102; 2271.
29. BI, CP G 2102; 2123.
30. BI, CP G 2102, 2117; 3371.
31. BI, CP G 2102, 3371.
32. *Ibid.*

arrangements seems to have induced Otes to attempt legal action once more in the church courts in around 1579. Again, the parties submitted to arbitration, this time of a rather more formal kind. In April 1580 a manorial court leet met at Carnaby, presided over by the steward of the earl of Northumberland, Mr Christopher Vavasour. Like Walter Strickland a decade before, Vavasour was satisfied by the testimony of witnesses that the payment of 3*s.* 4*d.* was an 'auncyent custome', and ordered that it should continue to be paid at Easter by the bailiff of Carnaby in consideration of all tithe whins from the East Moor and Rowgham Moor. Further, Otes was to receive 13*s.* 4*d.* for the arrears of payment, and as a goodwill gesture, he was to have 'yearly two lodes of whynnes or furzes of the free gyfte of the lorde of this manor'.[33] A number of parishioners were subsequently prepared to swear that they had seen Otes receive the money from the bailiff, William Lightfoot, in Carnaby church on the following Easter day, thus signalling his acceptance of the arrangement.[34]

Given that judgment had now twice gone against him, it is hard to see what prompted Otes to resort to law for a third time in 1583. Possibly it was in response to the recent actions of the bailiff, William Lightfoot. In the wake of Christopher Vavasour's ruling of 1580, Lightfoot appears to have instructed the 'strangers' farming the lord of the manor's whins on East Moor and Rowgham Moor that they were no longer to pay any tithes in kind.[35] Conceivably, Otes may have calculated that he would have more success pursuing his case rigorously through the church courts than he had hitherto received at the hands of lay judges. Proceedings were instituted against five parishioners: Ralph and Robert Hemsley, William Robson, John and William Sharpe, the suit generating the mass of depositions which allows the reconstruction of Carnaby affairs over the preceding 20 years. Once again, witness after witness appeared to testify that Otes's predecessors Robert Thirkelbye and James Todde had ungrudgingly accepted 3*s.* 4*d.* in lieu of tithe whins. One of them, William Rudstone, even claimed to recall an exact conversation from nearly 30 years before when vicar Todde received payment in the chancel of the church from Ralph Lightfoot, father and predecessor of the current bailiff: 'quoth the vicar unto him, is here all? No, quoth he, I am to pay you ii*s.* iiii*d.* for the mylle, and iii*s.* iiii*d.* for the moore'.[36] Once again Otes was outflanked in his attempt to reverse the *modus*. This time, the defendants secured writs of prohibition transferring the case to the common law, and the likelihood is that Otes abandoned the suit; certainly the customary payment was still in operation in the 1590s.[37]

Lesser men might have been deterred by their experience of such lengthy and fruitless litigation, but not John Otes. In 1586 he attempted to sue Ralph Vycarman for withholding tithes of fleeces at Fraisthorpe, showing little residual gratitude for the *ex gratia* payment of 10*s.* Vycarman had helped procure for him 20 years before. In the event, Otes was unable to prove that the sheep in question had been kept inside the parish, and the cause failed, with costs awarded to the defendant.[38] In 1597 Otes embarked on a fourth and final effort to defend what he perceived to be his rights with regard to tithe whins. The trigger on this occasion was the annual accounting in Carnaby church on Easter day 1597. When bailiff William Lightfoot offered Otes the accustomed 3*s.* 4*d.* the vicar refused

33. BI, CP G 3293.
34. BI, CP G 319; 2117; 2123.
35. BI, CP G 2102.
36. BI, CP G 319; 2117; 2124; 2953; 2123.
37. BI, CP G 2165; 2953. On the use of writs of prohibition in tithe cases, see R. Houlbrooke, 'The decline of ecclesiastical jurisdiction under the Tudors', in R. O'Day and F. Heal (eds.), *Continuity and Change: Personnel and Administration of the Church in England 1500–1642* (Leicester, 1976), pp. 254–55, and *idem, Church Courts and the People during the English Reformation 1520–1570* (Oxford, 1979), pp. 142–43.
38. BI, CP G 2239.

to accept it, and immediately brought an action against Lightfoot in the consistory court at York.[39] Otes's own account stressed that Lightfoot 'did not offere to this respondent the some of iii*s.* iiii*d.* simplely or speciallie for the tyeth whinnes ... growing the yeare before upon the groundes or moores comonly callyd East Moore and Roughame ... but generally for the tyeth of all the whinnes' in the whole parish of Carnaby. In fact, Lightfoot had proffered the money for the tithes of all whins at the two previous Easters, when the sum had been received in Otes's absence by the parish clerk. The latter insisted under oath that he had accepted the money 'onelie for Estmour and Rougham tithe whyns and not otherwise', but his admission that on previous occasions when he had stood in for the vicar he didn't know 'whether the bailiff ment and intended that that some should serve for the tith whyns of the whole parish or no' makes it seem likely that after 1580 no-one had in fact been paying whins in kind.[40] Whether sentence in this case went for or against Otes is unclear; what is certain is that the whole tithe whins episode had engendered a very considerable amount of ill-will in the parish.

In the last three decades of the sixteenth century, at least 11 parishioners of Carnaby were sued by Otes for non-payment of tithes. Over the same period, a further ten parishioners gave evidence against him in court. This must have constituted a significant proportion of all the adult males in a parish that in the mid-sixteenth century comprised only 30 houses and ten cottages.[41] Moreover, there seems little doubt that those individuals sued by Otes were among the most substantial and respectable of the householders in the parish. The central figure in the campaign against the vicar's demands was the bailiff, William Lightfoot, 58 years old in 1583 and invariably described as 'yeoman' in his depositions.[42] A clear status-description survives for only one other of the tithe-defendants, Robert Norham, 'husbandman', but three others, Robert Brewster, Ralph Hemsley and Henry Daile were among the few parishioners of Carnaby making wills in this period.[43] Ralph Vycarman was substantial enough to be carrying 10*s.* on his person at the Boynton meeting of around 1570, and he, or a kinsman, had taken a lease of tithes in Fraisthorpe some years before that.[44] Of those giving evidence against Otes, Christopher Pecke, John Chapman, Ralph Cappleman, and William Rudston were all husbandmen, the last-named also a testator.[45] Such men were well able to organise and express a parochial consensus over the whins issue that Otes found impossible to break down. Their testimonies repeatedly stressed that those of Otes's witnesses who admitted to paying tithe whins were 'strangers', 'dwelling without the township and parishe of Carnaby'; even if some of them were parishioners, argued Ralph Hemsley 'yet they were not the greater parte of the parishioners... nether yet the one half of the said parishioners ... or yet the hundredthe parte'.[46] In arguing that the existence of the *modus decimandi* was supported by common opinion, voice and fame, and 'the more parte of the parishioners of Carnabie and ... dyverse of there elders', Ralph Sharpe was rehearsing a conventional juridical formula, but in this case the cliché was clearly more than a piece of special pleading.[47] In court, Otes was forced into the embarrassing admission that one of his witnesses, John Jordane of Bridlington, had been indicted and found guilty of

39. Easter fell on 27 March that year; the case was before the consistory in April: BI, Cons. AB 48, fol. 81^{r}.
40. BI, CP G 2953. The parish clerk in question was Otes's son, Peter. See below.
41. *VCH, East Riding*, ii, p.126
42. BI, CP G 2117.
43. *Ibid.*; Prob. Reg. 21, fol. 425^{r}; 22, fol. 685^{r}; 26, fol. 161^{r}.
44. BI, CP G 2117; *VCH, East Riding*, ii, p. 204.
45. BI, CP G 2117; Prob. Reg. 22, fol. 683^{v}.
46. BI, CP G 2089; 2123.
47. BI, CP G 1964.

sheep-stealing at the York assizes.[48] The only Carnaby parishioners to depose on Otes's behalf were two labourers he had employed to help him load whins from the East Moor, and their evidence was hardly unambiguously supportive. George Preston claimed to have no knowledge as to whether these were tithe whins or not, or if 3*s.* 4*d.* had been paid to the vicar, 'but he thinketh if the same were paid it was paid in consideracion of tiethe whynes'.[49]

The language of parochial solidarity in which Otes's opponents excelled found concrete expression. When Otes took action against the five parishioners in 1583, a common purse was organised to meet the costs of the defence. Henry Wright, Christopher Pecke, Robert Chapman, Ralph Cappleman and William Rudstone all admitted making payments ranging from 2*d.* to 3*s.* 4*d.* 'towardes the maintenance of this suyt', and noted that they were obliged to 'give accordynge to taxe hereafter'. Rudston claimed to have contributed a total of 40*s.* 'and hath promised to pay more'.[50] Given the trouble and expense John Otes had imposed upon his parishioners by 1583, it is hardly surprising that strong feelings against him seem to have been aroused, perhaps particularly because the tithe in kind Otes was seeking to impose was not one on individual possession or profit, but on a common utility of the parish. Witnesses noted that Otes, like other parishioners, was entitled to take away as many whins as he wished for his own use.[51] Lying behind the parishioners' largely legalistic public stand was the imputation of idleness on the part of the vicar, and a suggestion that his obduracy in this matter was indicative of a fundamental failure of charity and neighbourliness. Christopher Pecke noted in his testimony that he had heard the existence of the *modus* confirmed by various aged parishioners who had died 20 or 30 years before, but added acidly that he did not hear that their elders had reported the fact to them 'by reason of all licklyhood there was no variannce at that tyme for anie tieth whinnes demanded by vicars of Carnaby'.[52] Ralph Hemsley was prepared to be more explicit: 'they know the said John Otes to be an unquiet and troublesom person, such as would go to lawe without iuste occation upon private displeasure conceyved against any of his parishioners'.[53] It was a reputation which Otes would find impossible to shake off. In 1596, the year before he resumed his tithe litigation, Otes was insulted to his face by James Randall of Bessingby: 'you ar a troblesome man and hath trobled your neybors wrongfullye'.[54]

Otes was not, of course, 'troubling' his neighbours continuously for 37 years, at least not in the technical sense. The tithe cases in which he involved himself represent snapshots of a clerical career which must have involved much unspectacular achievement and much routine activity. Moreover, they represent the debit side of the lay-clerical account book. We are entitled to wonder, as Otes's parishioners themselves must have done, about the credit side: what was received in return for their tithes and offerings in terms of religious instruction, moral guidance, and pastoral care, and what Otes himself may have understood as the duties, as distinct from the rights, consequent upon his ministry at Carnaby.

During the period of Otes's long involvement with the affairs of Carnaby the polity of the English Church was, of course, comprehensively remodelled and refined. Nearer

48. BI, CP G 2089.
49. BI, CP G 2102.
50. BI, CP G 319. Such common funds appear to have been extremely rare in cases involving clerical, as opposed to lay, tithe-owners: Sheils, 'The Clergy, Tithe, and the Courts at York', p. 247.
51. BI, CP G 2123.
52. BI, CP G 319.
53. BI, CP G 2102.
54. BI, CP G 3220.

home, in Carnaby itself the estates held by Bridlington Priory and St Leonard's hospital passed to lay landowners, and the lordship of the manor was transferred to the 'Puritan' Strickland family.[55] As a relatively young man at the time of the Elizabethan settlement, Otes may have found it easier than many clerics to adjust to the formal demands of a Protestant Church, yet he seems to have remained little touched by its spirit. Certainly, there were those among his critics who were prepared to draw such an inference. In his bruising verbal confrontation with James Randall, Otes alleged that he had been told 'thou arte no prieste, nor any that was maid prist in Quene Marie's tyme, as thou wast'.[56] What precisely Randall implied by the gibe is perhaps not immediately clear, but it must be that he was articulating the more widely held sense that there was something intrinsically untrustworthy about clerical survivors from the old regime. After all, less than 20 years before, Otes's erstwhile patron, the Dean of York, Matthew Hutton had been prepared to tell Archbishop Sandys to his face that 'my orders are better then yours ... for I was made a minister by thorder of the Quene's Majestie and Lawes now established, and your grace a priest after thorder of Poperie'.[57] An act of 1571 had required an explicit subscription to the Thirty-nine Articles on the part of any clergyman ordained under Henry or Mary, and in 1575, when Archbishop Grindal's chaplains undertook an examination of the Yorkshire parish clergy, some incumbents were labelled 'sacerdos' or 'sacerdos pontificius' in contradistinction to the 'ministers' ordained since Elizabeth's accession.[58]

To many contemporary theorists, the defining characteristic of the minister (as opposed to priest) was his willingness and ability to preach the word of God. By this definition, the aspersions cast upon Otes appear to have had some grounding. Not only was Otes no preacher himself, but he seems consistently to have failed in his canonical duty to procure quarterly sermons in his cure, a charge that was levelled against him at the visitations of 1575, 1578, 1586, and 1590.[59] In fairness it should be noted that this was probably the commonest failing laid to the charge of East Yorkshire incumbents in this period, and Otes's protestation in 1578 that though there had been only one sermon in the last year 'nether could he procure any more by any meanes' may not be entirely disingenuous.[60] As late as 1592, barely a third of the East Riding clergy were noted to be preachers.[61] Yet by this time the presence of a handful of self-confident Puritan preachers in the Riding had begun directly to impinge upon Otes at Carnaby. In January 1590 Otes submitted a set of articles to the Ecclesiastical Commission at York complaining of the activities of the preacher Lawrence Wyther in the parish of Bridlington. Wyther appears to have been, or was portrayed by his enemies to have been, the archetypal Puritan semi-conformist: he had refused to wear the surplice, which he termed 'Romishe ragges', and had accused all who used the sign of the cross in baptism of being papists.[62] A separate bill of complaint from the churchwardens of Bridlington to the archdeacon of the East Riding makes it clear that Wyther had been preaching without a licence in the parish church, and had divided the parish to the extent that the wardens feared that 'shortlie the matter will growe to some brawle in the church'.[63] Behind Wyther stood the

55. *VCH, East Riding*, ii, pp. 126–27.
56. BI, CP G 3220.
57. BI, Bp C & P XXIX.
58. P. McGrath and J. Rowe, 'The Marian Priests under Elizabeth I', *Recusant History* 17 (1984–85), p. 65; Purvis, *Tudor Parish Documents*, pp. 109–25.
59. Sheils, *Grindal's Visitation*, 85; BI, V. 1578–9 CB, fol. 37^{r}; V. 1586 CB, 162^{r}; V. 1590–1 CB, fol. 172^{v}.
60. Marshall, *Face of the Pastoral Ministry*, pp. 14–15; BI, V. 1578–9 CB, fol. 37^{r}.
61. Lambeth Palace Library, MS Carte Miscellanee XII, no. 9 fos 130^{r}-135^{v} (microfilm 35 in BI).
62. BI, HC CP 1590/1.
63. BI, CP G 3603.

local landowner, William Strickland, who 20 years before as MP for Scarborough had introduced a bill to purge the Prayer Book of objectionable ceremonies, including the sign of the cross in baptism.[64] Otes's concern with these dramatic developments seems at root, however, to have been fiscal rather than ideological. With the probable backing of Strickland, Wyther had ejected, or was attempting to eject Otes from his curacy at Bessingby, 'to the great impoverishinge of the said John Otes clerke, his wife and five poore children'.[65]

In fact, Otes's exaggerated show of concern with Wyther's omission of the proper ecclesiastical forms has a distinct ring of the hypocritical about it. Only a few months after the submission of Otes's articles, the Carnaby churchwardens were to complain that no surplice had been used in their parish since last Michaelmas.[66] This was almost certainly the result of negligence rather than of precisian scruple. Otes had a record of similar infractions: in 1575 he had failed to provide evening prayer on three successive feast days, in 1586 he omitted perambulations, and in 1590 the wardens noted that 'they never had any register', a defect that only seems to have been put right when Otes's successor was instituted to the parish in 1600.[67] Nor does it seem the parishioners of Bessingby were getting particularly good value for the small stipend which Otes valued so highly. In 1586 they complained of a lack of sermons and perambulations, and that Otes did not exhort the parishioners 'to brynge ther youthe to be instructed'.[68]

In terms of the provision of sermons and catechising, the Elizabethan Church was making new demands on the parish clergy to which Otes was only imperfectly able to rise, but it was also offering a new opportunity to the clergy, of which he was quick to take advantage. Otes was married some years before his institution to Carnaby, and was to be survived by his wife. We do not know how John and Isabel Otes met, or any details of her family or background, though we do know that she gave birth to at least five children, of whom at least two were alive in 1600.[69] It goes without saying, of course, that the presence of the vicar's wife was a novel phenomenon in the Carnaby of the 1560s and 1570s. It would be pleasing to imagine that Isabel Otes helped to socialise her irascible husband and integrate him more smoothly into the life of the community. Such evidence as we have, however, suggests otherwise. In the early 1580s she twice found herself cited before the York consistory on charges of defamation. The first case related to an incident at Hilderthorpe in Carnaby's neighbouring parish of Bridlington in May 1580, when Otes and his wife paid a call on John Stone, yeoman, and farmer of Carnaby whins. Our witnesses report that Isabel Otes and Stone's wife, Ellen soon began 'to tacke together of women with child', prompting Isabel to remark that according to her information Ellen Stone's servant, Agnes Owtridge, had been seen at York at a public execution 'so great with childe that she mighte have kissed her own bodie'.[70] For her part, Owtridge proved every bit as single-minded in protecting her sexual honour as modern students of the theme have led us to expect.[71] Summoned before the two women, she vehemently asserted her virginity, denied having been at York on the day in question, and proceeded

64. J. T. Cliffe, *The Yorkshire Gentry from the Reformation to the Civil War* (1969), p. 259.
65. BI, HC CP 1590/1.
66. BI, V. 1590–91 CB, detached presentment.
67. Sheils, *Grindal's Visitation*, p. 85; BI, V. 1586 CB, fol. 162^{r}; V. 1590 CB, detached presentment; V. 1600 CB IA, fol. 120^{r}; Carnaby Parish Register (BI, microfilm 188), fol. 1.
68. BI, V. 1586 CB, fol. 162^{v}.
69. BI, HC CP 1590/1; Reg. 31, fol. 142^{r}.
70. BI, CP G 2148.
71. On sexual honour and defamation, see J. A. Sharpe, *Defamation and sexual slander in early modern England: the church courts at York*, Borthwick Paper, 58 (York, 1980); M. Ingram, *Church Courts, Sex and Marriage in England, 1570–1640* (Cambridge, 1987), ch. 10.

to institute a slander suit against Isabel Otes. The latter did not go down without a fight, alleging that the prosecution witnesses, John Stone and Richard Chewe, were hopelessly biased due to their infatuation with Agnes. Sentence against Isabel was finally given in April 1584.[72] In the meantime, Agnes Owtridge had instigated proceedings before the York High Commission against Isabel's husband, John Otes. It is not now clear what precise charges were being brought against Otes; conceivably he had repeated or supported the libel instigated by his wife. In November 1581, Otes was cited to appear before the court, and was placed under a bond of £40 when he failed to do so. Upon his eventual appearance in February 1582, Otes was dismissed as he and Agnes were now said to be agreed, but he was still admonished to appear before the consistory on pain of forfeiting his recognizance.[73] The tenacity of a serving girl in pursuing this case seems remarkable, but it is virtually certain that the Stones helped and encouraged her. Good employers would hardly allow a heavily pregnant unmarried servant to remain living under their roof, and Isabel's slur on Owtridge was thus also a serious slur on them. Otes's apparent failure to do anything to defuse the situation, indeed the likelihood that he exacerbated it, seems indicative of the heavy-handed dealing with his more substantial neighbours that was to bring him such little satisfaction in his tithe affairs.

While the Owtridge affair was blowing over, Isabel had involved her husband in another legal wrangle. Once again the predicament grew out of the Otes' social activities in the parish of Bridlington. In an alehouse there Isabel Otes fell into an argument with William Consett. The latter was clearly an old acquaintance, for the charge Isabel proceeded to make against him was an unusual one: 'Well William, let these matters slipp ... for I darr sweare of a booke you gott my sone, George ... we have kept a boye of youres'. Otes's reaction to this revelation was hardly that of the outraged husband: when Consett angrily declared, 'thou lyest, whoore', Otes was reported to remark, 'I dar lay a wager it is even so ... when he roones to mans estate he will have a blacke beard as Conset haithe'.[74] Whether this represented a resigned acceptance of an unpalatable truth, or a spirited participation in the baiting of Consett, is not immediatcly clear from the context. On balance, the latter seems more likely, though by conniving at the accusation Otes might be thought to have been unwisely laying himself open to the social stigma and communal victimisation that was often directed at the cuckold in early modern English society. As Martin Ingram has shown, even the clergy were not exempt from becoming the objects of ridings and 'rough music'.[75] His wife's behaviour seems even more ill-considered: to admit publicly to adultery was to invite disciplinary proceedings in the church courts. In fact this was not to be the sequel, as Consett won his case against her. In July 1583 sentence was given against Isabel Otes; a few months later judgment went against her in the Owtridge case.[76] Neither sentence specified the exact punishment, but the strong probability is that Isabel Otes was required to perform public penance, and to ask the pardon of those she had offended. Most likely, Isabel was dilatory in fulfilling these requirements: it was noted at the visitation of 1586 that she was excommunicate, and her husband was summoned before the court, and admonished to procure his wife's absolution.[77] While it is by no means easy to generalise on the question of how the institution of clerical marriage may have affected attitudes towards the ministry in

72. BI, CP G 2148.
73. BI, HC AB 10, fos 145^{r}, 149^{r}, 152^{v}, 153^{v}, 154^{v}; HC Bonds 35 1581/2.
74. BI, CP G 2130.
75. M. Ingram, 'Ridings, Rough Music and the "Reform of Popular Cultures"', *Past and Present*, 105 (1984): p. 91.
76. BI, CP G 2130; 2148.
77. BI, V. 1586 CB, fol. 162^{r}.

Elizabethan Yorkshire, it is hard to resist the conclusion that in the vicinity of Carnaby at least, the minister's wife was a divisive figure, who hampered rather than supported the effective ministry of her husband. To have a wife who was excommunicate and forced to do penance, a 'loose cannon' scarcely under her husband's control, must have done much to undermine Otes's already shaky standing in the parish. In these respects Isabel Otes may not have been exactly typical, but neither was she unique. At the visitation of 1590, Agnes Gibson, the wife of another East Riding minister, was reported to be 'a skolde and a slaunderer of her neighbors'.[78] In the light of such cases, the conclusion of Philip Tyler that the marriage of the Yorkshire clergy 'caused the full integration of this profession into rural society' must seem rather blandly optimistic.[79] At the visitation of 1586 a parishioner of Seamer, Anne Grecyan, was presented for calling the curate's children 'preistes' calves', and for saying that 'it was never good worlde sence mynisters must have wyves'.[80] We can only conjecture as to how far such views were prevalent in Carnaby, but dwelling a mere dozen miles up the East Yorkshire coast, Grecyan may well have been aware of the goings-on in and around that parish.

Otes, of course, had a number of 'calves' of his own, and his partiality towards them created further grounds for friction between the vicar and his parishioners. In 1575 it was reported that Otes had appointed his eleven-year-old son, Peter, as parish clerk 'against the consent of the whole parishioners'. Moreover, he had allowed him to bury a child, 'contrarye to all lawes as they thinke'.[81] Given what we know of Otes's precarious financial position, perhaps the motive behind this piece of petty nepotism was to keep the clerk's wages within the family. Peter's nomination must thus have appeared as yet another example of Otes's readiness to exploit his parishioners to his own advantage. In the longer term, though, the appointment turned out to be a happy one, for the adult Peter served as something of a bridge between the irascible Otes and the parishioners. From the late 1580s Peter frequently deputised for his father in receiving tithes and offerings at Easter, and increasingly he, rather than the vicar, appears as a witness to Carnaby wills. Deathbeds he attended included that of Henry Daile, an inveterate opponent of his father over the whins issue. Bryan Lightfoot thought sufficiently highly of him in 1591 to bequeath him a ewe, a lamb, and a colt, and in 1600, the year of his father's death, Peter Otes was serving as churchwarden of the parish.[82]

Peter's apparent success in establishing himself as a significant and respected member of Carnaby society, while continuing as parish clerk loyally to serve his father's interests, may serve as an indication that over the long duration of John Otes's incumbency a degree of harmony between the vicar and his parishioners was neither unattainable nor irrecoverable when lost. In December 1584, at the height of the tithe conflict, Otes was noticeably absent as a witness to the will of Ralph Hemsley, but exactly six years before he had been present at the deathbed of another of those he had taken to court over tithes, Robert Brewster, who even bequeathed the vicar a bushel of seed barley.[83] In fact, Otes was a named beneficiary in five of the 19 Carnaby wills surviving from the period of his ministry, one testator in 1566 employing the increasingly uncommon formulation

78. BI, V. 1590–1 CB, fol. 108^{v}.
79. Tyler, 'The Status of the Elizabethan Parish Clergy', in G. J. Cuming (ed), *Studies in Church History vol. IV* (Leiden, 1967), p. 85.
80. BI, V. 1586 CB, fol. 105^{v}.
81. Sheils, *Grindal's Visitation*, p. 85.
82. BI, CP G 2953; Prob. Reg. 24, fos 472^{r}, 710^{v} (Lightfoot); 25, fol. 857^{v}; 26, fol. 161^{r} (Daile); V. 1600 CB IA, fol. 120^{r}.
83. BI, Prob. Reg. 22, fol. 685^{r}; 21, fol. 425^{r}.

of a bequest 'for forgotten tithes, yf any there be'.[84] His presence as a witness in 11 of the 19 wills suggests perhaps a rather more conscientious approach to the pastoral care of his parishioners than one would infer from the visitation reports. In the wider locality, Otes was neither ostracised, nor it would seem universally unpopular. The context for the slandering of Agnes Owtridge in Hilderthorpe in 1580 was a social visit by the vicar and his wife, the householder reporting coming home and finding them 'sittinge by a table ... whome he welcomed and sat downe besyde theme, and the said Isabel Otes fallinge in talke with this deponent's wife'.[85] While Otes's frequenting of alehouses was clearly a symptom of clerical indiscipline, it can also be seen as a willingness to participate in 'good fellowship', which may not have seemed incongruous to all of his parishioners.[86] When, as was frequently the case, complaints against Otes were made at visitation, they usually concerned sins of omission rather than commission, and he remained clear of the more heinous charges of simony, drunkenness, violence, and flagrant immorality brought against some other of the East Riding clergy in this period.[87] Yet there was inevitably a fine line between 'good fellowship' and behaviour simply incompatible with the dignity of the ministerial calling. In 1578, for example, it was reported that an alehouse was kept in a house belonging to the vicarage, though Otes was by no means unique among the Yorkshire clergy in giving in to this temptation.[88] More graphic and unusual was the defamatory statement made about him by James Randall in 1596: 'thou didest pull out thy pintle in the presence of certaine gentlemen and did pisse over thy head, sayinge maisters did you ever see an ould man do thus well?'[89] In July 1597, the York consistory decided that Otes had indeed been defamed, but in the meantime Randall had been provided with a further opportunity to humiliate the vicar and undermine his moral authority. In September 1596 Otes had been again cited to appear before the consistory, in connection with which case is unclear. His failure to do so led to the issuing of an excommunication, which Randall was given to deliver. Despite the pleas of Otes himself and the opinion of the apparitor of the deanery of Dickering, that it was sufficient to inform Otes privately of the sentence, Randall insisted on denouncing it publicly in Bessingby chapel at morning prayers on Candlemas day 1597. Otes's persistence in communicating and ministering the sacraments after this incident led to the issuing of a further suspension against him in February 1598.[90]

John Otes drew up his will on 11 March 1600. Since probate was granted on 23 May, he was almost certainly on his deathbed when he did so. The preamble was unexceptional: a bequest of the soul to 'allmightie god my creator and redeemer', which gives no clues to the state of his theological opinions or devotional preferences. Only two parishioners are recorded as witnesses: Christopher Walker and John Dale, though the latter may have been a son of Henry Dale, with whom Otes had clashed in the past. Other than the bestowal of all his goods on his wife, Isabel, son, Peter, and daughter, Susanna, the

84. BI, Prob. Reg. 17, fos. 558^{r} (tithe bequest), 775^{r}; 21, fos. 425^{r}, 502^{v}; 22, fol. 438^{v}. The figure of nineteen wills excludes those from the dependent chapelries at Auburn and Fraisthorpe, which for at least part of this period had their own chaplains.

85. BI, CP G 2148. It is worth noting that Isabel Otes claimed that their information on the putative condition of Agnes Owtridge came from William Lightfoot, who, whatever his differences with the vicar, may have perceived a shared concern with the incidence of bastardy and the policing of morality.

86. On this theme, see Haigh, 'The Church of England, the Catholics and the People', in C. Haigh (ed.), *The Reign of Elizabeth I* (Basingstoke, 1984), pp. 218–19.

87. See, for example, BI, HC CP 1571/1; CP G 1674; 1817; V. 1567–8 CB, fos. 30^{r}, 155^{r}; V. 1571–2 CB, fol. 65^{r}; Sheils, *Grindal's Visitation*, 72; V. 1578–9 CB, fos. 33^{v}, 43^{v}; V. 1590–1, fos. 115^{v}, 134^{r}, 143^{v}.

88. BI, V. 1578–9 CB, fol. 37^{r}. For other examples of this offence, see Purvis, *Tudor Parish Documents*, pp. 195–96.

89. BI, CP G 3220.

90. BI, CP G 3125.

will contained only one bequest: 'I do clearlie forgive all the poore people in Carnabie all their tiethes that is behind and unpaid of; and for the tieth of whinnes or furres and herbage.'[91] On the whins issue Otes may not have had the last laugh, but he made sure at the end to have the last word.

Otes thus left behind him a distinctly ambivalent legacy, not only to his parishioners but to the historian attempting to place his career in a meaningful context. It would be facile to seek to present Otes as a 'typical' Elizabethan parish clergyman: he was unusual in the heroic scale of his litigiousness, and fell below generally expected norms in many other respects. As a pastor of his flock, he seems at times little short of disastrous. Yet neither should he be dismissed as a monster or a caricature. On the occasions when, along with other East Riding clerics, Otes's fitness was examined by the authorities, the impression given is one of a more-or-less acceptable mediocrity. In 1575, Otes was said to understand some Latin, to catechise diligently, and to be religious.[92] In 1592 he was noted as no graduate or preacher, but able to catechise and 'honest'. No fewer than 60 of the 146 clergy serving in the East Riding at that time were characterised in identical terms.[93] Like the great majority of his fellow clerics, Otes was a conformist. When the occasion demanded he could, as we have seen, express outrage at Puritan innovation, but his true religious feelings (if they existed) remain intractably obscure. There is no evidence that Otes was ever overtly opposed to the settlement of 1559. Indeed, in 1589 he himself may have been the target of Catholic dissidence: the churchwardens' presentment of the following year noted that John Brian had often disquieted the vicar in time of divine service, and especially during baptisms 'reading upon a booke lowder then the vycar'.[94] Nonetheless, it may well be that the mediocrity, poverty, and longevity of men such as Otes did more than any seminarist or Jesuit to inhibit the spread of Protestantism in Yorkshire. Of the beneficed East Riding clergy instituted, like Otes, before 1569, at least 34 were still in office in the 1580s, and a further 16 carried on into the 1590s.[95] Such men were not necessarily reprobates, or even ineffective pastors, but they were highly unlikely to be the standard-bearers of godly Protestantism. None of the 1560s survivors who can be found in Archbishop Piers' certificate of 1592 was noted to be a graduate or a preacher.[96] In this context, as Alexandra Walsham has recently suggested, the increasingly virulent denunciations of 'cold statute Protestants' within the growing volume of Puritan anti-Catholic polemic can seem an acute comment on pastoral exigencies, rather than a merely conventional rehearsal of contemporary typologies.[97] While examples of disreputable priests can be found without great difficulty in every epoch of Christian history, it is difficult to avoid the temptation to look upon Otes as a dislocated person, a transitional figure, uneasily occupying that hiatus before the emergence of a more fully 'professional', graduate clergy in the seventeenth century. Although he began his ministerial career in the old devotional world of Catholicism, he brought little of its ambience with him into the new dispensation. Bereft of the charism adhering to the office of the sacramental priest, he was unable or unwilling to assume the new

91. BI, Reg. 31, fol. 142^{r}.
92. Purvis, *Tudor Parish Documents*, 121.
93. Lambeth Palace Library, MS Cart. Misc. XII, no. 9, fol. 134^{v}, and fos. 130^{r}-135^{v}.
94. BI, V. 1590–1 CB, detached presentment.
95. Figures derived from the calendars of presentations produced by N. A. H. Lawrance: *Fasti parochiales; Deanery of Dickering*; *Fasti Parochiales Vol V; Deanery of Buckrose*, Yorkshire Archaeological Society Record Series, 143 (1985); 'The Clergy of the Archdeaconry of the East Riding, Harthill Deanery', and 'The Clergy of the Archdeaconry of the East Riding, Holderness Deanery', (typescripts in the BI: Add MSS 152–55).
96. Lambeth Cart. Misc. XII, no. 9, fos 130^{r}-135^{v}.
97. A Walsham, *Church Papists: Catholicism, Conformity and Confessional Polemic in Early Modern England* (Woodbridge, 1993), ch. 5.

charism of the preaching minister. There remained the traditional and continuing role of the clergyman as parochial peacemaker and reconciler of disputes, but this was a part he was clearly temperamentally unfitted to play.[98] The ministry of Otes at Carnaby might not have been 'average' or 'typical', but it can nonetheless be regarded as epigrammatic of the disjunctures and disappointments to which the vision of a godly reformation in the rural parishes of Elizabethan England all too easily fell victim.

98. On these categories and types, see Collinson, *Religion of Protestants*, pp. 104–05; J. Bossy, *Christianity in the West 1400–1700* (Oxford, 1985), pp. 64–65.

BIRDSALL MANOR HOUSE: A LATER SEVENTEENTH CENTURY HUNTING LODGE

By Ann Alexander

Many of the gentry houses of pre-Georgian Yorkshire were depicted by Samuel Buck in his sketchbook of *c.* 1720,[1] and some of these houses survive in drastically altered forms. This article suggests that a building sketched by Buck forms the core of the present-day 'Manor House' at Birdsall. Birdsall is situated on the edge of the Yorkshire Wolds, near Malton. The Manor House, which is superficially Victorian, stands on a plot of land associated with the glebe. This property, along with other rectory perquisites, came into lay hands at the Reformation, and for many years formed part of the estate of the Viscounts Irwin. Members of this family built for themselves two successive houses at Birdsall. The second of these houses, dating from 1698–1700, is identifiable with one which Buck drew in bold outline only, and labelled 'The seat of Lord Erwin in Birdsall'.[2] This rectory Manor House (SE 811 647) is not to be confused with Birdsall House (SE 815 648), the principal residence in the village. The latter in its present form is a mansion of the eighteenth and nineteenth centuries, concealing an earlier Jacobean version also drawn by Buck.[3] His drawing of this impressive house was executed in some detail, and was presumably the main reason for his visit to the village. For it is evident from the way Buck captioned his sketch of Lord Irwin's seat that the artist did not initially know who the owner was.

The Viscounts Irwin had their main residence at Temple Newsam, near Leeds, but they were heirs to lands widely scattered throughout Yorkshire. The estate was mainly assembled in the early seventeenth century by the creator of the family fortune, the financier Sir Arthur Ingram. Among his purchases was the profitable lay rectory of Birdsall, bought for his son, Sir Arthur the Younger.[4] This property had once belonged to Watton Priory, and had some claim to be a manor in its own right.[5] When the Ingrams took possession, a rectory house already existed.[6] However, Sir Arthur Ingram the Younger replaced it with another house in the same enclosure in about 1655.[7] This house was described as being for Sir Arthur's own 'use and appointment'. Sir Arthur had by this time inherited the prestigious mansion at Temple Newsam, and so he cannot have intended to reside in the much more modest house he built at Birdsall. It is therefore clear that the new house was conceived as an informal retreat or 'hunting lodge'. Perhaps it was designed to replace the lodge which the first Sir Arthur Ingram had maintained

1. British Library, Lansdown MS 914, facsimile published as *Samuel Buck's Yorkshire sketchbook* (Wakefield, 1979).
2. Buck facsimile, p. 33.
3. *Ibid.* p. 35.
4. West Yorkshire Archive Service at Leeds, Temple Newsam papers (TN) BL A4; A12.
5. E.g. in WYAS Leeds TN F 18/1 Particular, nd; most of the Watton lands at Birdsall had not been part of the main Domesday manor.
6. Birdsall rectory had earlier been the seat of Roger Thorpe, father of Francis Thorpe 'of Birdsall', Commonwealth MP.
7. Nottingham University, Middleton papers (Mi Da) 133/3, p. 2; WYAS Leeds TN BL 3/10.

Fig. 1. 'The Seat of Ld Erwin in Burdsall', from p. 33 in *Samuel Buck's Yorkshire sketchbook*. The outline of Lord Irwin's neat rectangular house, built in 1700, adjoins a semi-erased sketch of an earlier building. The title of the picture as originally written with a gap to allow the owner's name to be inserted, indicating that the drawing was made on a chance view. Reproduced by permission of the British Library and Wakefield Historical Publications.

at Huby, in the Forest of Galtres.[8] Although the quarry at Huby in the early seventeenth century had been deer, deer-parks were by this time becoming an anachronism, as other uses of the land became more profitable. Huntsmen sought alternative game by the riverside and in the agricultural landscape. There is no evidence to show whether in fact Sir Arthur the Younger went to Birdsall to hunt, but his grandson undoubtedly did, as will be seen. 'Hunting lodges' were not uncommon among great landowners at the time, and there were other examples in the neighbourhood. The Stricklands of Boynton had a 'hunting lodge' at Malton, refurbished in the 1680s and again in the early eighteenth

8. C. G. Gilbert, 'New Park, Huby — an early 17th century hunting lodge' in *The Yorkshire Archaeological Journal* 45 (1973), pp. 185–88.

century.[9] And of comparable size was Ebberston Lodge, an elegant retreat situated between Pickering and Scarborough, built in 1718 for William Thompson.[10] Both Malton and Ebberston lie, like Birdsall, on the fringe of the Derwent valley, with access to both high ground and low.

The Birdsall house of Sir Arthur Ingram the Younger was built in stone and roofed with stone slates. The building account does not reveal the details of the plan, but it mentions a considerable number of rooms, and hearth tax lists record seven fireplaces. A house of similar size and date has been erased from the page on which Buck drew Lord Irwin's Birdsall seat. It is therefore logical to regard the erasure as a picture of this house of 1655, abandoned when Buck decided to concentrate on the newer and grander building which adjoined it on the rectory site.

The second Ingram house in the rectory garth was undoubtedly the building boldly outlined in the Buck picture. This 'new house' was built between 1698 and 1700 by the third Viscount Irwin, a grandson of Sir Arthur the Younger.[11] Its genesis and appearance are documented in a variety of ways.

The third Viscount Irwin is known to have been an avid sportsman, and his enthusiasm for the chase is commemorated in a full-length portrait showing him with gun, pointer and game.[12] He stands by a river, presumably the Aire at Temple Newsam, but the mixture of high ground and low recall the landscape of the Birdsall area. This sporting portrait, which was painted by Leonard Knyff in about 1700, is contemporary with the new house at Birdsall.

Evidence that from 1693 the Viscount enjoyed entertaining his friends at Birdsall is supplied by various accounts.[13] They record expenditure for a series of house-parties held there in the autumns of 1693, 1697, 1699, 1700 and 1701, and in the late spring of 1696. On these occasions, and probably on others, Lord Irwin entertained parties of sportsmen, accompanied by large numbers of horses and dogs (in some cases described as hounds). The accounts show that the visitors ate considerable quantities of mutton, ale and butter, with occasional delicacies such as plaice, lobster or plover. They passed the evenings with the aid of tobacco, brandy, playing-cards and ninepins. It seems likely, given the landscape of the area, that the game they pursued included pheasants, duck and wildfowl, the birds Knyff showed in his portrait. He also depicted a hare, and at Birdsall, too, coursing is recorded. In addition, the accounts mention men paid to stop up fox-holes and 'fox-yards', suggesting that fox-hunting was highly regarded as a sport. As an alternative entertainment there might be racing, for Birdsall adjoins Langton, where race-meetings were held on the wold. Lord Irwin's 'running horses' were recorded at Birdsall on several occasions, one of which coincided with the house-party of spring 1696. As the parties at Birdsall began before the building of the 1700 house, they clearly initially involved hospitality in the 1655 building, by this time the home of the tenant

9. Alison Sinclair, 'Sir William Strickland's hunting lodge at Malton' in *English architecture public and private: essays for Kerry Downes*, ed. John Bold and Edward Chaney (1993), pp. 189–97.

10. Nikolaus Pevsner, *Buildings of England: Yorkshire: the North Riding* (1966), p. 154; it is possibly relevant that Ebberston had been within the Forest of Pickering.

11. WYAS Leeds TN BL B3/10. The summary of building expenses is dated early 1701, but most of the workmen had by then already been paid, largely out of the tithes. The house was probably ready in the autumn of 1700.

12. For the third Viscount's fondness for field sports, see James Lomax, 'The grandeur of plate: 400 years of country house silver at Temple Newsam', *Leeds Arts Calendar* 107 (1990), p. 11, col. 1. The portrait is at Temple Newsam.

13. WYAS Leeds TN BL B3/8; BL B3/9. 1693 was the year when an agreement to complete the enclosure of Birdsall was confirmed, WYAS Leeds TN BL A14; Nottingham University MiDa 133/11a; 133/18.

farmer. Stables and kennels were built for the visiting animals some years before the second Ingram house was begun.

For this new house, there are detailed building and furnishing accounts which give a picture which exactly fits Buck's outline. The sketch shows a three-storey house only one room deep, with a gabled roof. A central door is fronted by an enclosed garden. The accounts show that the house was constructed of 359 loads of local stone and 500 bricks. The bricks were also made locally, judging from the price, but 'round tiles' for the roof were brought over from Hull. The front door was emphasised with a painted and gilded 'great dial'. Inside, there was a hall, a dining room and a drawing room on the ground floor, two main bedrooms and a lesser one on the first floor, and garrets. All the rooms were furnished appropriately for their intended use, with chairs in both reception rooms, blue and crimson hangings in two of the gentleman's bedrooms, and simple arrangements for the servants in the garrets.[14] Fittings significantly included hooks for hanging guns.

The building accounts for this new house mention a pantry but no kitchen, which suggests that cooking for sporting parties still took place in the earlier house, where the kitchen is well-documented. In addition to providing cooking arrangements the old house probably sometimes supplied further beds, for there were only three gentleman's beds in the new house, although the reception rooms could each seat ten people or more. Improving an earlier house by adding a suite of fashionable new reception rooms was not uncommon.

The cost of building the 1700 house was virtually £360, considerably more than double that of the house of 1655, and a further £163 was spent on furnishings.[15] The project was therefore a significant drain on Lord Irwin's resources, which was presumably why it was opposed by his steward.[16] The expensive new house was, in the event, of little use to its builder, who died in 1702. Although his heir was a keen sportsman, the only sporting party at Birdsall subsequently recorded occurred in 1710. As late as 1717 hounds and horses from Temple Newsam came to Birdsall at 'huntingtime', but no entertaining is recorded, and Lord Irwin was elsewhere.[17] Interest in Birdsall as a sporting facility had waned. Moreover after 1720 the family was seriously embarrassed financially owing to the bursting of the South Sea Bubble.[18] Soon both houses were being let to the tenant farmer.[19] In the circumstances it is not surprising that Buck decided that it was not worth his while to organise and finish his sketch of *c.* 1720.

Rather more than a century later, the first edition Ordnance Survey map labelled the rectory house at Birdsall 'Rectory Manor', referring to two completely unattached buildings standing corner to corner, at right-angles to each other.[20] The arrangement is compatible with the description of the rectory house given by a mid eighteenth-century survey, which cites 'two dwelling houses now enjoyed together as one'.[21] It also incidentally supports the theory that Buck's erased drawing might be an abandoned sketch of the 1655 house.

At present an L-shaped house stands on the site. The exterior is almost wholly Victorian, and only close scrutiny reveals that small details from the earlier houses survive in the masonry and arrangement. A lintel which could date from 1655 is embedded in

14. WYAS Leeds TN BL B3/9; BL B3/10.
15. The 1655 bill (with no movable furniture included) was for 139 2*s.* 6*d.*, WYAS Leeds TN BL B3/9.
16. WYAS Leeds TN BL C52; BL C53.
17. WYAS Leeds TN BL C86.
18. James Lomas *op. cit.*, p. 13.
19. WYAS Leeds TN BL B1 (survey n.d. 'Robert Milner's farm').
20. First edition O.S. map, 6 ins to the mile, sheet 142 (1855).
21. Survey as in n. 19.

one limb of the L, while the other has a wide doorway and tall front windows appropriate to the house of 1700. However, the interior, although heavily victorianised, retains stronger evidence of the older houses. There are low-ceilinged rooms in the limb which contains the kitchen, and high-ceilinged sitting-rooms in the other limb, the two halves, with their later corner-piece, forming a very ill-coordinated whole.[22] There seems to be no doubt that Lord Irwin's house of 1655–1700 survives within Birdsall Manor House even more conspicuously than the Jacobean mansion of Buck's drawing survives within Birdsall House. Both were carefully disguised to conform with later fashions, one Georgian, the other Victorian.

22. I am very grateful to Mr and Mrs Hart, the tenants, for allowing me to see the house, and to Lord Middleton, the landlord, for his cooperation throughout my investigations.

WILLIAM LOCKWOOD — AN UNKNOWN SURVEYOR 1778–1836

By Valerie Taylor

PROVENANCE OF THE DIARY

On 15 August 1981 the Yorkshire Post reported that 'a small tattered old book recording a young Yorkshireman's life and thoughts in the eighteenth century' had been given to Mr T. Rhynehart of Cherry Burton, North Humberside.[1] He was given an old envelope containing the diary by the late Mrs Betty Huzzard, of Cherry Burton who had an interest in local history. To Mr Rhynehart the diarist was a mystery but he knew that the writer lived in Easingwold, in the (former) North Riding of Yorkshire. He made enquiries of the vicar, the Reverend David Porter, and (the late) Mrs Edith Warner, a local historian, who identified the diarist as William Lockwood.

INTRODUCTION

Inside Easingwold parish church on the wall of the south aisle is a mural monument, inscribed as follows:

> To the memory of
> William Lockwood,
> attorney-at-law, a native of this place. His integrity and uprightness of conduct, his kindness and charity to his neighbours, are seldom equalled and never surpassed. He died March 31st, A.D. 1836, age 58.

Fortunately it is possible, through a variety of additional sources, to learn much more about William Lockwood, his family, social and professional life. Principally the supplementary information comes to us by way of his diary. The document, which is deposited in the Borthwick Institute of Historical Research (BIHR), contains both William Lockwood's diary (from January 1796 to May 1797) and his account book covering the years 1797–98.[2]

The town of Easingwold lies in the northern part of the Vale of York 13 miles NNW of York and ten miles SSW of Thirsk on an important route from York to Newcastle. It is one of 19 market towns located within the Vale of York.[3] A weekly Friday market was functioning in 1796/97 according to William's diary. The population census of the township in 1801 recorded 1,467 persons and ten years later the 1811 census records 1,576 persons.[4] This small increase over the ten-year period is indicative of a relatively small and static community.

1. C. Parsons, *Yorkshire Post*, 15 August 1981.
2. BIHR Easingwold PR 241. Now published: Helen Kirk (ed.) *Ye dear Object of my Affections. The Diary of William Lockwood of Easingwold 1778–1836*, Forest of Galtres Society 1996. The transcript (pp. 1–54) is accompanied by a commentary and illustrative essays.
3. R. W. Unwin 'Tradition and Transition: Market Towns of the Vale of York 1660–1730', *Northern History*, 17 (1981) pp. 75–98.
4. The 1801 Census figure is taken from The House of Commons *British Sessional Papers* and the 1811 Census figure from the *VCH*, III, (1913) p. 507.

THE DIARIST

Although William Lockwood begins his diary in January 1796 it is not until he starts a new notebook in May of that year that he actually gives the reason for keeping a diary:

> Ruminating on the various scenes & changes of Human Life The numerous Objects which every day command Attention and the various Temptations and snares that are continually laid to delude and entrap unwary youth Methought the proceedings of my younger Days (if Fortune should bless my Future Hours with Health and Happiness) might sometime hence afford me pleasure in recounting them again Therefore the following a Memorandum committed to writing of various occurrences in Business & Pleasure as often as Recollection and time would permit

Even more telling in the context of what follows is the surviving fragment of his introductory entry:

> — may justly term the agreeablest part of my life when to my inexpressible grief I was recalled home to my native place whereafter being about a month at liberty for recreation I was bound Clerk to my Father (being in the seventeenth year of my age) on the 22nd of July AD 1794 consigned to dwell in the dull place of my Nativity for 5 years.

Clearly William was shocked by the news that he must return home. Left to himself he probably had no intention of returning to Easingwold to be an attorney's clerk, much less to work for his father. The very thought of the prospect caused him dismay. However, he obeyed his father's command and returned home to his family home in the Market Place.[5] There is no indication at all in the diary of what he was doing or his whereabouts prior to his father's recall. By the time William began to keep a diary he had already spent 18 months working as a clerk for his father (also named William Lockwood) who was one of Easingwold's attornies.

HISTORIOGRAPHY

Within the last 40 years very little has been written about the lives and duties of either attornies or surveyors. Robert Robson's *The Attorney in XVIII Century England* (1959) traces the development of the legal profession giving particular emphasis to the ways in which the profession conducted itself. Robson has shown how the attornies and solicitors were in need of regulation within their profession which came about through parliamentary acts coupled with the formation of some provincial Law Societies.[6] Only in a brief appendix does Robson give any description of the life of an articled clerk.[7] In 1976, Harry Kirk chose to trace the history of the solicitors' profession from 1100 to the present day at the invitation of the Law Society.[8] Kirk succeeded in painting a 'true-to-life' portrait of the profession looking closely at the education, training and the nature of a solicitor's work.

F. M. L. Thompson published an account covering the first hundred years of the Institute of Chartered Surveyors on the occasion of its centenary in 1968 but this did not purport to be 'a complete history of surveyors and surveying'.[9] Recent studies of the surveyor's craft begin with the work of E. G. R. Taylor, who considered the mathematical

5. Easingwold Enclosure Award 1812, award no. 133, plotted on the map accompanying the Award NY CRO, NRRD 14 and Microfilm 1529 frames 009–056.
6. R. Robson, *The Attorney in Eighteenth-Century England*, (Cambridge, 1959). William Lockwood senior was present at the initial meeting of the Yorkshire Law Society on 21 March 1786. He became its vice president in 1783 and president the following year. *Catalogue of the contents of the Library of the Yorkshire Law Society* (York, 1886), pp. 18 and 21.
7. *Ibid.* pp. 155–58.
8. H. Kirk, *Portrait of a profession* (1976).
9. F. M. L. Thompson, *Chartered Surveyors: the growth of a profession* (1968).

aspect of surveying: 'Such statistical material as is to be found in extents, surveys, terriers, stewards' accounts and similar documents can only safely be used in so far as the methods employed for mensuration and computation are understood.'[10] Taylor's work applies mainly to seventeenth-century surveying techniques but it is helpful in so far as it demonstrates how land surveying came to have a more mathematical base and was further aided by the improvement in precision instruments with telescopic sights and verniers.

Other historians have studied surveyors in the context of the enclosure movement where they are noted as assistants to the enclosure commissioners. Information relating to the day-to-day work of the surveyor, however, is sadly lacking. More recently in 1993 Patricia Preece has written of her interest in the work of the Beddings, William and Robert (father and son) of Bucklebury, who, using the chain for land measurement, practised as estate surveyors in eighteenth-century Berkshire.[11]

Hull deals with those men who acted as surveyors and map-makers concerned with the enclosure process in eighteenth-century Bedfordshire. When discussing the surveyor at work Peter Hull made this valid statement, 'that seldom is it possible to see the life of a surveyor in closer focus than mere statistics can provide' implying that little or no original background material has survived. Hull has used the executors' papers of Gee, a land surveyor of Turvey, to describe how the enclosure surveyor worked. The papers of this Northampton man, who operated from 1775 until his death in 1811, comprise 'letters, bills, and general papers'.[12]

The article by Eden (1973) dealt with land surveyors in Norfolk over a three hundred year period from 1550–1850.[13] He introduces the estate surveyor as a man with 'mathematical know-how' often doubling his role of surveyor with that of one interested in agriculture or as one who might also have had an interest in the work of an appraiser, a gauger, a carpenter or an instrument maker.[14] Eden deals with 'The Surveyors of Inclosure'. He provides evidence for the fact that land surveying did tend to be 'an hereditary occupation' with sons and nephews being involved in the family business.[15]

A publication of a scientific nature on the subject of the surveyor and his instruments was issued by the Whipple Museum of the History of Science. This publication was devised to accompany a special exhibition of the mathematical sciences in 1982. The booklet places the art of surveying clearly on a scientific foundation effectively illustrating the development of surveying and the associated instruments that were available to the surveyor from the sixteenth to the twentieth century.

A catalogue featuring 'Surveyors and Mapmakers' has proved to be another useful source because, in addition to a brief summary of the different types of survey, the catalogue lists the whereabouts of some of Yorkshire's printed maps as well as including a list of tools for the surveyor's craft and a very brief introduction to his life and duties.

BACKGROUND TO SURVEYING IN THE EIGHTEENTH CENTURY

The work of the surveyor in the eighteenth century differed in some respects from that of his medieval counterpart. For the latter 'surveying seems to have been by view and

10. E. G. R. Taylor, 'The Surveyor', *Economic History Review*, XVII, (1947) p. 121.
11. P. Preece, 'Some eighteenth century chain surveyors: the work of the Beddings of Bucklebury, Berkshire'. *The Local Historian*, 23, no. 4, (Nov. 1993).
12. P. L. Hull, 'Some Bedfordshire Surveyors of the Eighteenth Century', *Journal of the Society of Archivists*, I, (1955) pp. 31–37.
13. P. Eden, 'Land Surveyors in Norfolk 1550–1850', *Norfolk Archaeology*, vols. 35–36, (1973), pp. 474–82 and (1975), pp. 119–48.
14. *Ibid.* Pt I, p. 475.
15. *Ibid.* Pt II, p. 126.

estimate rather than by accurate measurement'.[16] Adam Martindale in the sixteenth century taught his grammar school pupils surveying methods in the open-air. He determined 'to instruct youths in Mathematical learning' as well as teaching them the practical skills of surveying by chain and how to use a theodolite.[17] A classical education and a sound legal knowledge were deemed to be the necessary pre-requisites for those learning the art of surveying.

During the course of the eighteenth century, educational standards improved markedly from those of the previous century. In secondary schools greater emphasis was placed on the 'practical application of arithmetic, algebra, geometry and trigonometry'.[18]Some schools, like those of Quaker foundation, gave their pupils a grounding in a philosophical education which, in addition to mathematics, included a knowledge of mechanics, optics, hydrostatics, astronomy, chemistry and botany. They maintained that the teaching of these subjects should go hand-in-hand with experiments.[19]

In addition to being taught scientific subjects in school there were individuals who took apprentices. One known Yorkshire example was Mr Lund, a land-surveyor and land-valuer, of Dringhouses, near York.[20] He took as apprentice one of the Dawson brothers (either Miles or William) of Oxton, near Tadcaster, aged 15, who had previously been taught geometry and mensuration by the Reverend Mr Atkinson of Thorp Arch. Both brothers went on to become enclosure commissioners in the latter part of the eighteenth century whilst their brother, John, undertook surveying.[21]

The eighteenth-century surveyor was advised to use the surveying textbooks to learn his craft. Further, he needed to be able to apply his knowledge of mathematics and use the tables of tangents and sines as well as having an understanding of the required legal knowledge. By the end of the eighteenth century, with the enclosure movement in full swing, surveyors were in popular demand. Their duties were primarily to assist the commissioners with land re-distribution together with the layout and measurement of new roads.

INSTRUMENTS AND EQUIPMENT

A description of such tools and their application is neatly laid out in William Leybourn's *The Compleat Surveyor* and this, taken together with the contemporary guide to prices which was set out by Joseph Harris in 1783, makes it possible to gain some idea of the cost involved for the surveyor.[22] Two essential pieces of equipment required by the surveyor would include a plane table and Gunter's four pole chain.[23]

The latter was obtainable for between 6*s.* to 12*s.* (30p to 60p) from, for example, 'At the Sign of the Orrery', 136 Fleet Street, London. The cost of a plane table could range from three to five guineas and was used for marking out the bearings taken in the field on to a secured piece of paper thus enabling the surveyor to sketch his map there and

16. P. L. Hull, 'Some Bedfordshire Surveyors of the Eighteenth Century', *Journal of the Society Archivists*, I, (1955) p. 32.
17. A. A. Mumford, *The Manchester Grammar School. 1515–1915* (1919) pp. 94–95.
18. A. W. Richeson, *English Land Measuring to 1800: Instruments and Practices* (Cambridge, 1966), p. 142.
19. T. Clarkson, *Portraiture of Quakerism*, (in 3 vols.), vol. 3, (1806) p 362.
20. M. Richardson, (ed.) *The Autobiography of Mrs Fletcher* (Edinburgh, 1875) p. 1.
21. *Ibid.* p. 13. P. Eden, (ed.) *Dictionary of Land Surveyors and Local Cartographers of Great Britain and Ireland 1550–1850*, Pt I, p. 82.
22. W. Leybourn, *The Complete Surveyor*, 5th and final edn, (1722). J. Harris *Globes and Orrery*, 12th edn, (1783).
23. The table of linear measurement was as follows:
    25 links = one pole (or one perch)
    4 poles (perches) = one chain
    10 chains = one furlong
    8 furlongs = one mile

then. To purchase even these two basic instruments required a minimum outlay of £3 9*s.* 0*d.* (£3.45) and an additional small circular compass would cost at least 3*s.* (15p).

William almost certainly used a plane table and he would have known about the theodolite and its function for measuring angles and heights but he had never used one in his work. This fact is borne out in part of an entry in his diary for [Wednesday] 7th December 1796 which reads as follows:

> ... made Mr Jackson a present of a Terrier spent an hour or two with him in the Evening discoursed upon different Branches of the Mathematicks conversation which perhaps may be of some use to me hereafter. He lent me a Theodolite complete the first I ever saw which I intend if I am able to put in practice.

Whether or not William managed to put the theodolite into practice will never be known for he does not make any further reference to the instrument again. A theodolite was an expensive item and to purchase a new one from London, would cost from three to six guineas (£3.15 to £6.30).

The instrument most commonly used for measuring and taking the dimensions of timber was a 'Coggleshall's' or carpenter's sliding rule.[24] The sliding rule was normally made of box wood and, when folded together by a central joint measured one foot in length. The sides of the rule, front and back, carried different scales to be used for the purpose of taking dimensions, working out proportions and finding the area of plane figures. Also included was a table for working out the price of timber, scaled from 6*d.* to 24*d.* (2.5p to 10p) per foot.

To construct his map the surveyor required drawing instruments; drawing pens, paper and perhaps a pantograph, the minimum cost amounting to around £8. In all, considerable financial outlay was required to purchase even the most basic equipment necessary for surveying.

William's account book gives an insight into his purchases of equipment and their cost. For example, on the 31 May 1797 he 'Bought a new inkstand which cost me one shilling very portable' but the ink that he used, according to his diary, he made himself. The most expensive purchases he made in relation to his equipment were a copperplate magazine costing 18*s.* 0*d.* (90p) and a desk which amounted to 17*s.* 6*d.* (87.5p). Vellum too was costly at half a guinea (52.5p) per sheet. Smaller items, such as, a pocket book, a sheet of paper, a pencil and three pot inkstands all cost 1*s.* or less. Finally, perhaps quite unrelated to surveying, is one item which cannot be excluded and that is William's purchase of 'scientific experiments' for which he paid 1*s.* 0*d.* In two years he had spent a total of £2 10*s.* 0*d.* on his own equipment.

THE SURVEYOR AT WORK

A surveyor's work had many facets of which the chief were: timber mensuration and valuations; land measuring and valuation; surveying; plan drawing and mapping. Other related work included making sundials and undertaking rental valuations. These aspects will now be illustrated from William's diary entries.

MENSURATION

Mensuration or the art of measuring or taking the dimensions of objects such as timber 'may be considered an indispensable part of knowledge, with the art of surveying ...' according to George Adams. In this same context in 1789 William's father was found to have had a similar interest in timber. 'Articles of Agreement Indented' show that, for the

[24] G. Adams, *Geometrical & Graphical Essays* (1803), pp. 485–86.

sum of £1,240 William Lockwood [senior], Thomas Sootheran and John Smith entered into an agreement with The Right Honourable Henry Earl Fauconberg to enter into the lands of the latter at Old Byland (near Helmsley)

.... to Pill [meaning to peel] Fell Cut down take and carry away with Horses and Carts and other Carriages All these One Thousand Nine Hundred Oak Trees with the Cyphers thereto belonging and also Two Hundred and one Ash Trees with the Cyphers thereto belonging which are marked and numbered or Cyphered ...[25]

Lockwood senior, Sootheran and Smith were actively involved in the purchasing of large amounts of timber presumably for resale in some form or another several years before William Lockwood junior engaged himself in this work.

In his role as a surveyor William was in demand for measuring wood (for valuation purposes) and for marking wood and weighing bark. The diary does not contain any detail as to which method of measurement the diarist might have used for the valuation work. Timber merchants were known to measure by eye especially when they were measuring young trees, whereas when measuring full grown trees the correct method required the use of three or four men, ladders and a pole plus a girthing tape. The latter method of tree measurement was a slow and expensive business so an alternative method using a tape-line might be applied after the trees had been cut down. The timber was then ready for sale. William, when called upon to measure wood locally usually did it in the afternoon, only once did he measure wood all day.

Marking wood was done for a different purpose. Oak trees were marked as they stood either in a wood or a plantation to indicate which trees were ready to have their bark stripped, peeled and then cured. There were only a few weeks in the year when this work could be done which was normally between mid-May and mid-June. Calculations were then made of how much bark was likely to be removed and how many labourers would be necessary to remove it. To cut the trees and peel off one ton of oak-bark could cost somewhere in the region of between 45*s*. and 50*s*. a ton.

Once the bark had been stripped from the oak trees it was laid out on stages rather like tobacco to allow it to dry. The free circulation of air was all that was required for this purpose. When the bark was dry it could be sold either direct to the tanners from the stages, or chopped into pieces, bagged and then delivered to the buyer. William actually engaged himself in weighing bark and looking after the wood on one occasion and at another time he accompanied Mr Jackson to Angram (near Husthwaite) to look at some bark.

Mr Jackson's name crops up on several occasions in the diary. He may well have been a local man as family reconstitution (using the parish register) of the Jackson families has revealed a Thomas Jackson, tanner, and William his brother who traded as a butcher; they were aged 52 and 48 years respectively in 1796. Their father, Thomas Jackson, a tanner, had died 13th September 1795. Further research using the *Universal British Directory* brings the total number of persons with that surname up to five.[26] As well as the three mentioned so far, there was a Thomas Jackson trading as a mercer, draper and bacon and butter factor whilst the fifth, named William Jackson, is listed as a watch maker. Obviously there is a problem in deciding to which Mr Jackson William might have been referring. When it came to mensuration however it is more likely to have been Mr Jackson the tanner with whom William worked.

25. NYCRO ZDV Microfilm 1282, Frames 7532–35.
26. M. Winton, *The Universal British Directory 1793–1798*, 3, Pt T, (facsimile text edn, King's Lynn 1993).

TIMBER VALUATIONS

Valuers of timber had to be mindful of two criteria; the first was based on the size and quality of the timber and how adaptable it would be for its given purpose, i.e. house or ship building. Secondly, because of transport difficulties and given the condition of the roads, timber which lay closer to the road or to navigable water was considered to have greater value. When valuing wood, William usually worked alongside either Mr Smith or Mr Jackson.

On [Tuesday] 29th November he 'Set off with Mr Smith to Catton[27] to value wood'. Unfortunately William does not punctuate his diary entries and following on he records, 'came to Thirsk ...[28] — where he spent the evening with the Walkers and stayed overnight'.[29] The next day, 'being the coldest I was ever out in since I can remember', he spent marking wood and did not arrive back home to Easingwold until nine o'clock that evening. The following day, [Thursday] 1st December William employed himself in calculations all day; presumably these were related to the valuation of the wood but he does not amplify his statement neither does he identify for whom it was made. The answer lies in an entry in William's account book made some eight months later on 25th August 1797 when he states he was paid £2 12*s.* 6*d.* by Mrs Livesay for valuing wood at Catton.

Early in the following year, on [Tuesday] 17th January 1797, William carried out another timber valuation. In readiness for the task he rose at six that morning, having made some preparations the previous day. He set off to [H]Ovingham to 'value some wood there' accompanied by Mr Jackson and by someone referred to as T. Smith. William states that he worked hard all day; sleeping that night at Mr Hammond's[30] and then breakfasting at Slingsby. That day he carried on valuing until three o'clock. After tea at 'Ovingham' he returned to Ampleforth with T. Smith and stayed the night there. The following morning [Thursday] 19th January William records 'Settled our acc[oun]ts & got to Easingwold to dinner measured some wood this afternoon'. There is no record in the account book of any fee for this valuation. Nowhere in the diary are there any clues as to whether the wood he measured and/or valued was standing or felled timber but the references to marking timber would indicate that these were trees ready to be felled.

Standing wood and timber were valuable commodities judging by a valuation taken by J. Thompson of Bagby in March 1793 of wood belonging to Earl Fauconberg at nearby Newburgh and Old Byland.[31] For example 545 Oak Trees at Old Byland were valued at £585 2*s.* o*d* and 74 Ash trees amounted to £30 4*s.* o*d.* making a total of £615 6*s.* o*d.* The complete valuation totals £1,228 6*s.* 6*d.* It is clear from the valuation document that Earl Fauconberg intended to sell the wood on his two estates at Old Byland and Newburgh and that that was the reason for the valuation. A written valuation like this would have been similar to the ones William was required to submit once he had worked out his calculations.

RENTS AND VALUATION

There is only one record in the diary of William Lockwood being involved in collecting rents. This he did when he accompanied Mr Scott of Oulston to Catton.[32] This was not

27. Catton is a hamlet lying between the villages of Topcliffe and Skipton-on-Swale.
28. The other Yorkshire village of Catton is near Stamford Bridge in the former East Riding.
29. Mr Walker was an attorney in Thirsk. See *Universal British Direcory*, IV, 1798.
30. Mr Hammond was one of Edward Worsley's tenants at Hovingham. NYCRO Land Tax, Ryedale Wapentake, 1787, Microfilm 196.
31. NYCRO ZDV Microfilm 1282, Frames 7610–13.
32. Thomas Scott the younger, of Oulston Hall, NR, gent., later acted as an enclosure commissioner.

William's first encounter with Mr Scott, nor his first visit to Catton. He had dined with Scott in March 1796 after he had visited Coxwold to fetch some certificates and the two men made a preliminary visit to Catton on [Tuesday] 4th October 1796 in preparation for the valuation of Holme Farm.

The visit to Catton gave the two men an opportunity to 'look over the farms there & receive rents'. They completed their task in the day and returned home by nine in the evening. Following this visit they had obviously planned to go again on [Tuesday] 11th October when William received a 'countermand'. The countermand was probably due to inclement weather for William notes that it rained all day. In spite of the fact that it was still raining the next day William went to Oulston to call upon Mr Scott to go to Catton. They arrived at Holme Farm at half past nine and engaged themselves in the valuation which took all day. William records that he slept at William Prince's at Catton that night. On Thursday they finished their business and 'set off for Northallerton races' for some light relief. William notes that he 'saw two Capital heats & got to Easingwold by eight' [pm]. Friday he spent calculating and writing most of the day. On Saturday, by eight o'clock in the morning, he had arrived in York 'carrying Mrs Livesay her Rents'. William's visit to Catton raises several questions with regard to who the people were and his connection with them. Mr Scott of Oulston was a farmer[33] and also one of the commissioners named in nine separate parliamentary enclosures throughout both the North and East Ridings.[34] His son Thomas, who later described himself as 'Agent',[35] was one of the enclosure commissioners appointed in 1808 for Easingwold along with John Tuke of York.[36] It is quite possible that he enlisted William's help in preparing the Catton rental and used him to deliver the rents to Mrs Livesay in York. Additional research has shown that Mrs [Rachel] Livesay was a widow who lived in Bootham, York.[37] Her will states that, as well as the Catton estate, she also owned estates at Carlton and Islebeck [at Thirkleby, near Thirsk]. These three estates she devised to her sister Mary Bell 'for and during the term of her natural life ...'. William Prince's name has been traced through the Land Tax records for Catton for the years 1782 and 1784, being one of the tenants of Peter Bell Esq.[38] Peter Bell, it seems, was Mrs Livesay's brother-in-law to whom she entrusted the management of her Catton estate.

William's father too, in his position as an attorney, handled estate rents and prepared rentals so William himself would be familiar with the necessary procedures.

DIALS

According to William Leybourn in his book *The Compleat Surveyor*, the making of Sun-Dials was, 'a thing I conceive both useful and necessary, as well for the Surveyor, as other persons, who may have occasion for the same.' In other words, the expectation that this formed part of the routine work of a surveyor was taken for granted. Amongst other skills, it required a certain basic knowledge of 'Sines, Tangents and proportional lines' and part of Dial-making's usefulness for training purposes was 'to show the Use of

33. BIHR *Coxwold Parish Register*
34. J. Crowther, *Enclosure Commissioners and Surveyors of the East Riding*, (East Yorkshire Local History Society, 1986) p. 50. B. English, *Yorkshire Enclosure Awards*, (University of Hull, 1985).
35. BIHR Coxwold Parish Register; Baptisms:
    10 May, 1785 Thomas, Scott Thomas, Ann Nicholson Oulston Farmer
    19 August, 1807 Ann, Scott Thomas, Catharine Hamilton Oulston Agent
36. 'An Act for Inclosing Lands in the Township of Easingwold in the North Riding of the County of York' 48 Geo III 1808, p. 2
37. BIHR, Will made 26 August 1803 and proved in the Prerogative Court of York in October 1805.
38. CRO, Land Tax for Catton, Birdforth Wapentake, Microfilm 413.

the formention'd Tables and lines in the Calculations of the Requisites and Hour-Distances for all manner of Horizontal and Upright Dials.'

William certainly tried his hand at this skill. Four specific references occur in his diary during the months of May, June and September, 1796. The actual entries read as follows:

21 May made an Horizontal Dial in the Forenoon
25 May marked a Dial [but trifled greatest part of the Day]
8 June drawing and painting a dial
24 September Finished a dial.

These tantalisingly brief entries have posed a number of questions, not easily answered.

Where William learned his skill to craft a horizontal dial or sundial is not known. All attempts to find his name in the apprenticeship registers have drawn a blank; however, it is clear from other entries in his diary that William had a very wide reading list so it is quite possible that he gained his knowledge on the subject of making dials from a book such as Leybourn's and was self-taught. Three references to dials in as many weeks, followed by only one further reference before the extant portion of his diary ceases, suggests that this may have been a 'one-off' experiment in broadening his sources of income.

Whatever may have been the motivation, it is clear that he did not spend much time on this particular aspect of a surveyor's work. Both of the May dials occupied him for less than half a day. Similarly, the June dial was drawn and painted after 'Writing all the Forenoon'. In order to construct a simple horizontal dial William would have had to have been able to apply both the knowledge of the latitude of a place from which the dial would be set up and his mathematical skills. It was necessary to graduate the dial plate with lines radiating from the centre to the outer edge or equinoctial line. The central line represented the noon line which ran north/south and from this point the lines were spaced at 15 degrees for each hour line, seven and a half degrees less if the half-hour divisions were to be shown.[39]

Horizontal dials for external use were normally made of brass or bronze and it is unlikely that a young attorney's clerk (for that was his profession at the time of these entries) would have been able to afford either a metal cast plate or the necessary tools to fashion the lines merely as a recreational activity. One entry in his account book dated 16 June 1797, reveals that William bought a dial from John Preston, bricklayer — a friend and neighbour — for 1*s.* 0*d.* This could have been a second hand one or perhaps John Preston provided the basic structure for William to work on. Masons, it seems, were qualified to make dials but, because 'the lineating of the dial plate was a matter of science', mathematical skills were required.[40]

Sundials as well as being made for external use also had an internal or domestic use. This latter type could be produced at little cost if made of paper. When William stated that he made 'an horizontal dial in the forenoon' it is unlikely that this could have been anything more than a paper design judging by the time he spent in crafting the dial. Also the separate references to marking a dial are suggestive of paper being used rather than metals or even wood because of the time spent on the task.

The reason why William engaged himself in crafting dials is not known. It may be that he was working with a professional engraver or clock-maker to make a paper template or layout for a garden sundial engraved by another craftsman. In the seventeenth and eighteenth centuries the pocket sundial was very common in much the same way as the

39. F. W. Cousins, *Sundials a simplified approach by means of the equitorial dial* (1969).
40. Mrs A. Gatty, *The Book of Sundials* (1872) p. 151.

wrist-watch is today.[41] Pocket sundials usually contained a compass, the points of which were often set out on paper or card, perhaps even hand coloured, displaying an eight point rose for instance. In Easingwold at this time there were two clockmakers,[42] one of whom was called William Jackson. The engraving, a feature of the sundial, could have been done by this Mr Jackson, perhaps the same person who lent William the theodolite.

The reference to painting a dial could have meant that William stretched his artistic talents by involving himself in painting clock dials in addition to making sundials. The iron sheet clock dials, came into vogue around 1770,[43] displaying painted rustic scenes for example, in the arch and corners of the clock face. These were often the work of a local artist who specialised in painting dials. This type of clock face with black painted numbers on a painted white background became fashionable because they were easier to read than the earlier brass faced clock. Although dial painting provided the local artist with extra work, unfortunately painted dials were not normally signed so that, even if an example of Lockwood's work had survived, it would not be possible to positively attribute it to him.

LAND MEASURING AND VALUATION

The enclosure process certainly gained momentum in the latter half of the eighteenth century and with this process came the need for men who could not only assess the quantity of the land with its concomitant requirement for more accurate surveying methods but also capable of judging the quality of the land as well. According to Jan Crowther 'Quality men' were the ones with local knowledge who would carry out a valuation but it was the surveyor's job to measure the land.[44]

There was always the need to value land and property and William had the necessary skills for this type of work. The valuation of land could be done in one of two ways: either by using the rental as the basis then calculating 'the value of it at so many years' rents',[45] or by assessing its potential but the latter method though needed expertise from someone who could exercise judgment with regard to the value of land and buildings. Further, the valuer would have had to take into account the climate and how it could affect the value of an estate as well as being a good judge of the different soils. Land and property valuations were usually required prior to a sale and it was not unusual to carry out a valuation prior to enclosure. The General Enclosure Act of 1801 deemed it necessary for a 'true survey, plan and valuation' to be carried out prior to enclosure.[46]

William also engaged himself in the business of land measuring. Again this was something he did for people in the locality; measuring 'some land' — 'a parcel of land' or 'a field or two' — were the phrases he generally used. On two occasions he records where the land was; on the first (19th September 1796) he took his dog and gun with him to measure some land at the White House which is a little more than a mile out of town northwards situated beside the Thirsk Road. He 'shot a brace and a half of partridges'. The second occasion occurred one month later on 19th October and took him across the fields to Thomas Kitson's farm near Craike. This task he completed in the day.

41. D. J. Bryden, *Sundials and Related Instruments* Catalogue 6 (The Whipple Museum of the History of Science, 1988)
42. B. Loomes, *Yorkshire Clockmakers* (Dalesman books, 1972), pp. 89 and 104.
43. B. Loomes, *Yorkshire Clockmakers* (Dalesman Books, 1972) p. 17
44. J Crowther, *Enclosure Commissioners & Surveyors of the East Riding* (East Yorkshire Local History Society, 1986) p. 10.
45. R. E. Brown, *The Book of the Landed Estate* (Edinburgh 1869), pp. 316–33.
46. F. M. L. Thompson, *Chartered Surveyors: the growth of a profession* (1968), p. 38.

William had been to look at the land in the late afternoon of the previous day after which he wrote up his 'observations' that evening before going to bed.

Although the measurements and resultant acreage of Kitson's farm do not appear to have survived, it has proved possible to reconstruct the arithmetic of William's calculations from two sets of rough jottings made on the interleaving of his diary. These appear facing the entries for January 1796 and Christmas 1796.

An examination of these jottings shows that the linear measurements of links according to Gunter's four-pole chain are multiplied to give 'square links' which, when divided by 10,000 (100 × 100) show the overall acreage. The remainder can then be converted to roods and perches by multiplying the quotient first by four and then by 40 respectively.

SURVEYS

(i) Driffield

Surveys were required for a variety of reasons: prior to a rent review, before the sale of land, after the death of a land owner, or with a valuation before a proposed enclosure. Here the surveyors often worked under the supervision of the enclosure commissioners or some independent person. William recorded in some detail three separate surveys that he conducted and these will be described in chronological order as each one is different.

The first recorded survey required William to travel to Driffield in the East Riding. This necessitated him leaving Easingwold on [Saturday] 19th March 1796 at six o'clock in the morning. He travelled on horseback via Yearsley and probably Malton although this town is only noted on the return journey. He 'got to Driffield to dine about half past one'; the journey took him seven and a half hours. He does not mention any stop en-route for breakfast. William met a Mr Horseley in Driffield with whom he spent the evening when his supper consisted of 'Apple Py and Milk' before going to bed at about half past eight. On Sunday he went to church in the morning and attended the Baptist Chapel in the afternoon. That evening William supped with Mr Horseley and Mr Bass of Hull. The next day [Monday] 21st March, William was 'Busy all the day planning and surveying'. After finishing his work, he 'returned to sup with Mr Horseley and Mr Otley'. The following day after breakfasting with Mr Otley William travelled home. He reached Malton by 11 in the morning and was back in Easingwold by four o'clock in the afternoon. The survey plans (if there were any) may well have been drawn on site but no mention is made of any planning being done in connection with the Driffield survey after William's return home.

It is not clear from the diary who exactly commissioned the Driffield survey although one assumes that it was probably Mr Horseley. The purpose of the survey is not stated either, or why William was required to travel all the way to Driffield for one day's work when there were probably local men who could have done the work. Nothing is known of Mr Horseley but Mr Otley was found to be a grocer and mercer operating from premises in Driffield market place.[47]

(ii) Mr Nelson

William's second survey took place nearer home in the adjoining parish of Craike. Fortunately in this survey William states precisely whose lands he was going to survey. He began his work on [Monday] 7th November 1796 and states that the survey was to be of '... Mr Nelson's Estates there'. The first day he spent 'in preparing my apparatus for the purpose ...'. The apparatus he refers to probably consisted of a plane table, a

47. *Universal British Directory*, III, 1793.

portable surveying instrument, which would need to be positioned correctly for him to record the necessary bearings. The next day he was rained off so he resumed his work on Wednesday after leaving home at nine o'clock that morning; he surveyed until four in the afternoon. On Thursday he was 'engaged in taking an eye view of ye rest of the Lands to be surveyed'. This task appears to have taken the best part of the day to complete because he did not dine until four o'clock, when he went to Ricabys.[48] Friday happened to be 'our great hiring day' in Easingwold so William stayed at home 'to entertain the various descriptions of People we had invited in'. Saturday he spent drawing plans and resumed his surveying work on the following Monday (14th November), working until three o'clock in the afternoon. He did the same on Tuesday, surveying until two o'clock, then after dinner he measured a field or two. The survey of Mr Nelson's Estates took five days and was completed by the 17th November. Between the 18th and the 24th of November William was engaged in drawing plans for five more occasional days. This survey coupled with all the planning was obviously a big undertaking for it took a total of 11 days to complete. According to his account book William received £5 from Mr Nelson (Reverend Nelson's brother) on 16 June 1797 for conducting this survey.

Additional research has revealed that the reason for this survey was because of the death of the Reverend Thomas Darcy Nelson, clerk and Rector of Holtby near York. In his will made 3rd August 1793 and proved in the Prerogative Court of York in July 1799 he names his estate at Craike as one of several estates that he owned in the villages around York.

(iii) Mr Wailes

William's third survey, of William Wailes' estate in Easingwold began on [Saturday] 25th February 1797. This survey was also for probate. The day after Mr Wailes died, [Monday] 31st October 1796, William recorded that he 'Arose this Morning full of anxiety about the death of Mr Wailes who sho[ul]d be appointed 'Cl[er]k of ye Peace'.[49]

According to the diary Wailes owned Cock Farm, which is still extant today (1995), situated beside the Thirsk Road on the northern outskirts of the town. William surveyed the farm itself first on [Saturday] 25th February and finished the task the same day. He did not attend church in the forenoon of Sunday because of 'drawing etc.'. William resumed his survey on the Monday following and continued surveying on a daily basis all that week. His survey of Wailes' estate took him seven days to complete and a further day and a half in drawing plans afterwards making a total of two full days spent in planning.

Wailes's will states that he had land and property in Northallerton and nearby Brompton in addition to lands at Danby upon Wiske and Husthwaite,[50] a village lying to the north of Easingwold; but interestingly, it does not mention any land or property in Easingwold.[51] William stated in his account book that he received a payment of two guineas for this survey on 7th July 1797. He was obviously out of pocket as a result as his account book also reveals a note made on 27 December 1798 that he was due to receive another £4 as Wailes's expenses.

There is no mention of any assistance with the practical side of the above survey nor for the other two he conducted; neither is there any other mention of his apparatus

48. Thomas Ricaby lived in Craike.
49. Diary entry for 31st October [1796] 'Arose the Morning full of anxiety about the death of Mr Wailes who sho[ul]d be appointed Cl[er]k of ye Peace ...'
50. 'Mr Wailes buried at Hustwait.' A. W. Dyson, (ed). *William Metcalfe — His Book* (Easingwold 1980) p. 40.
51. BIHR Probate Records, Prerogative Will, May 1797.

except on the one occasion at Craike. The assumption is that all of William's surveys involved the use of a chain for measuring.

PLAN-DRAWING

'Planning' or making a cartographic record of a survey was a very important part of the surveyor's work. Often the map or plan is all that is left of a survey for the historian to work on. William Lockwood's diary holds a record of three specific references to surveys, two of which necessitated drawing plans and have been related above.[52] However, there are other references to planning which have not been covered, but which are equally important. Each of these specific references is unrelated to anything that immediately comes before or after it in the text. Analysis of the diary entries set alongside other local sources, *viz* four extant plans of the town fields of Easingwold has now established a connection between these two sets of documents thus confirming that they are attributable to William Lockwood.

In the diary there are six references spread over a nine month period telling the story of William's 'planning' process. He introduces the subject on [Thursday] 30th January 1796 stating that he was 'engaged in my own appartments with drawing plans'. These six diary references, when isolated, helped to clarify and to confirm the fact that William, at some time prior to 30th January that year, had conducted a survey of Easingwold's four town fields. They record the progress of his cartographic work.

The first two references refer simply to drawing plans, then by the month of June, William states that he was 'drawing and finishing my plans'. In the penultimate entry he inserts the words 'of the fields'. Finally, on 6th October he says 'finished my plans of the fields'. Throughout these months he carried on with his various other duties whilst working on the plans as time and/or his inclination permitted. In the absence of any field books that William might have produced like those in the Fairbanks collection[53] the plans together with the diary entries go a long way to confirm that William was probably the surveyor and almost certainly the first known cartographer of Easingwold's town fields a full decade prior to parliamentary enclosure.

Interestingly, contained within the Fairbank Collection there is a printed pocket-diary covering the year 1785 and, like William Lockwood, the diarist (William Fairbank the second, 1730–1801) also gives an insight into his professional life through his daily record. He followed in his father's footsteps to become both a schoolmaster and a surveyor.[54] Their surveys were conducted outdoors on the land, the survey being made on one day and mapped on a later day, either in the home or in the office. The Fairbanks' plans were drawn in a pocket book using pen and ink, unlike William Lockwood who introduced colour into his plans.

Further evidence that the plans were the work of William Lockwood comes from the plans themselves. Three of the plans are signed as follows:

1. Craike Field is signed 'WL May 1796' in tiny lettering hardly visible to the naked eye and merged into the bottom of a hedge drawn around the cartouche with no record of the field's acreage;
2. Church and Mill Field plans both contain the initials 'WL 1797' within a different style of cartouche along with the fields' recorded acreage;
3. Stone Field is both undated and unsigned but the calligraphy and the style is of a piece with the other three plans.

52. (1) The Driffield survey: (2) Mr Nelson's Estate at Craike: (3) Mr Wailes's Estate at Easingwold.
53. F. W. Hall, *The Fairbanks of Sheffield 1688–1848* (Sheffield 1932).
54. *Ibid.* p. 7.

4. Church field — underneath the cartouche, are the cartographer's words, only visible with a magnifying glass, 'W. Lockwood's Delin'.

The initials and the signature are sufficient evidence that the plans are attributable to William. The purpose of the plans, though not stated in the diary, appears to be to record the owners and/or occupiers of the residual amount of land still farmed in strips lying within the town fields since each strip is numbered although there is no accompanying terrier to provide a key to the numbers.

The plans do not have a linear scale and each orientation compass is of a different design. They are in manuscript form and as such are William's original pieces of artwork. Each plan is coloured with what remains of the field boundaries outlined in blue. Red is used to denote flatt boundaries whereas the remaining strips are coloured in yellow. The calligraphy is displayed minuscule and majuscule script contemporary with that used on enclosure awards. His lettering, thought to be 'the most difficult skill to master'[55] is clear and consistent on all four plans. Each plan exhibits an individual cartouche with the field name and (in three cases) another bearing the acres, roods and perches, his initials and the year. There appears to be no consistency about where on the plans the cartouches are placed other than where William could fit them in.

It is most likely the plans were commissioned as part of the pre-enclosure process in Easingwold. John Tuke, land surveyor, writing in 1800 was of the opinion that: 'In the best parts of this [North] Riding, few open or common fields now remain, nearly the whole having long since been inclosed; ...'.[56] In actual fact seven villages within a ten-mile radius of Easingwold had enclosed their open fields by private act between 1756 and 1800.[57] After 1800 a further six villages[58] plus Easingwold enclosed their open fields under private act, and finally, one further village, Huby (near Easingwold) enclosed its open fields under the General Act of 1836. Tuke's statement implies that the villages around Easingwold and the town itself were not included, by him, in 'the best parts' of the North Riding.

In spite of the fact that Easingwold's open fields had been surveyed sometime before 1796/7 when the plans were drawn it was to be a further 11 years before the enclosure process finally did get under way.

TOWNSHIP VALUATION

In the meantime however, the diary does contain another record of William's involvement in the pre-enclosure process when he apparently gave assistance with the township valuation. When first reading the diary it is not readily apparent what William's role was in the township valuation; neither is there any indication why there needed to be a valuation, nor who commissioned it. Only when all the valuation references are taken together does the picture become a little clearer.

William first mentions his association with the valuation on [Friday] 10th March, 1797. On that evening he was 'Employed till 12 o'clock writing for the valuers & arranging their papers etc two nights'.

The following day he was 'Busy with the valuers all the forenoon dined with them ...'.

In the next related entry made on the 25th March William wrote that he was 'Busy in the office all day time and engaged every evening this week with Scott & Hartas

55. I. H. Adams, (ed). *Papers on Peter May Land Surveyor 1749–1793* (Edinburgh, 1979) p. xix.
56. J. Tuke, *General View of the Agriculture of the North Riding of Yorkshire* (1800) p. 90.
57. Sutton-on-Forest 1756: Stillington 1766: Sheriff Hutton and West Lilling 1769, Haxby 1769, Tholthorpe and Flawith 1800. W. E. Tate and M. Turner, *Domesday of Enclosures*, (Reading, 1978) pp. 294–301.
58. Skelton and Overton 1806, Alne 1807, Helperby 1809, Tollerton 1810, Shipton 1812, *ibid.*

respecting the Valuation of our Township supt (*sic*) with them & drank a glass of wine and water and smoked a pipe every night'.

A further entry made on the 30th March reveals that he spent part of the day (he does not state which part) 'examining deeds etc supt at Jno Prestons with Hartas & Scott finished our business by 11 smoked a pipe and drank a glass of wine ...'.

This is the first time that the diarist introduces the names of those involved in the valuation and from his entries it seems that they were acting as independent valuers for the township. William, of course, knew Scott but this is the first mention of Hartas in the diary and, so far, all attempts to trace this person have failed.

Taking the story a stage further a diary entry for the 2nd April states: 'employed myself in devising plans for regulating our valuation'.

It would seem from this remark that the valuers, Scott and Hartas, were using William and his abundance of local knowledge about the people and their landownership, to make any necessary adjustments to the overall valuation.

Furthermore, William's role in the valuation becomes clearer when he states that from the 4th to the 8th April he worked solidly all week 'writing and settling our val[uatio]n Acc[oun]ts till 12 o'clock every night'.

Then likewise on the 14th April he was 'engaged until 1 o'clock in the morning' and similarly on the 15th (being Easter Saturday) he was 'up by 5 & worked all day till 3 o'clock on Easter Sunday morning'.

Finally, on the 16th April, William had 'Compleated all the Acc[oun]ts this [day?] and made them ready for inspection'.

It is interesting to observe that William must have breathed a sigh of relief when he had completed the accounting part of the township valuation for he spent the next day (17th April) 'Engaged at Jno Prestons all Day drank great part of a bottle of wine in the Evening & got to bed by half past ten'.

The following day he must have shared breakfast with the valuers as his entry for the day records that

> After Breakfast I parted with friends Hartas & Scott leaving me to receive the amount of their bill £154.15 & to discharge all Expenses attending the Business (but not till we had finished three excellent Bishops for the last farewell) attended the meet[in]g and supper at Carvers.

Eleven days later on [Saturday] 29th April William notes that he

> Finished my new Val[uatio]n book and walked to Oulston to examine it with Mr Scott settled all the bus[ine]ss and returned home by six o'clock being very wet and dirty walking.

The last related valuation entry in the diary (5th May) shows a very human touch for it records that William, while out walking with his friends Cock and Scott, as far as Hanover House '... [they] talked together ab[ou]t the Rumours which were spread about the charge for the valuation etc met a returned chaise and had a pleasant ride home'.

Evidence found in the 'Valuation Book' itself confirms William's diary entry and is cited in full as follows:

> Easingwold 1st May 1797
> The owners & Occupiers of Lands within the Township of Easingwold
> To Willm Hartis (sic) & Thos Scott For Valuing the Township of Easingwold with the Houses & Tyth's including all Expenses attending the same containing in the Whole 6190 Acres at 6d per Acre £154.15.0.

Here is confirmation that the valuation was of the township and the cost involved is the same as William's diary entry and further that the valuers were indeed Thomas Scott and William Hartas.

There is no clear record of exactly how much William should have been paid for his part in the valuation but his account book for 28 December 1797 shows that he had £21 left after a valuation payment. During the course of the following year he entered two more receipts, one (13th Jan) from 'RB' of 'Valuation money in his hands £1 1*s.* 0*d.*' and the other (22nd May) from 'Mr J' of 'Valuation money £3 1*s.* 0*d.*' making a total of £25 2*s.* 0*d.*

CONCLUSION

An analysis of William Lockwood's working days over the period covered by the diary reveals that only 51 per cent of his time was spent on legal matters and a further 40 per cent was absorbed by surveying tasks of various kinds. Small wonder that he experienced 'inexpressible grief' at the change of profession imposed upon him by his father. It is not known whether William ever made a full transition from surveyor to attorney — the only subsequent reference that has been traced sees him acting as enclosure commissioner for nearby Kilburn, the award for which was made in 1829.[59] However, although the diary covers only fifteen months of William Lockwood's working life, it could hardly have been a better period from which to illustrate how one local (and previously unknown) surveyor put into practice the wide variety of services expounded by Leybourn's text book. Mensuration, timber valuations, rentals, dials, land measurement, surveys, cartography and land valuation—they are all here in the diary of an attorney's clerk — yet how easy it would have been to miss the potential of that diary had it not been re-united with the plans of the town fields and the township valuation.

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JOSEPH WARBURTON (1786–1846) OF PATELEY BRIDGE AND HIS ASSISTANT DR JOHN SNOW

By Spence Galbraith

During recent research into the early life of Dr John Snow (1813–1858), a famous epidemiologist and anaesthetist,[1] information about the life of Dr Joseph Warburton of Pateley Bridge and his family was obtained. This paper is presented so that this material is available to local historians and others, who may wish to undertake further research into this well known local medical family.

WIBSEY 1786–1807

The date of birth of Joseph Warburton could not be found. His baptism, however, is recorded on 18th April 1786 at Wibsey Chapel, Wibsey, near Bradford, Yorkshire, now known as Holy Trinity, Low Moor. The baptismal register shows that he was the son of Edward Warburton, weaver, woolstapler, woolcomber and stayman. His grandfather, also named Joseph Warburton (1721–1801) and his grandmother Sarah had at least three children, namely, Margaret (1746–1820), Edward (1751–1820) and James Threapland (1755–1820).[2]

Wibsey was then a small West Yorkshire village on the southern hill-side of Bradford dale. At the end of the eighteenth century the mineral wealth of the neighbourhood had begun to be exploited and by the 1840s much of the land had been despoiled and covered with shale hills, the refuse of coal and ironstone mines. The nearby Low Moor Ironstone and Coal Company, which was established in 1790, became the most renowned ironworks in Yorkshire.[3] By the twentieth century, however, the village of Wibsey had been included within the City of Bradford and become a desirable suburb of the expanding city. It was no longer a mining district and the shale hills had been concealed and built upon.

The Warburton family originally came to Wibsey from Cambridge in the seventeenth century and intermarried with the local family of Threaplands, becoming a well-known local medical family. Their practice in Wibsey continued for at least 150 years, from the eighteenth century until 1936 (see note 2 above). Such medical dynasties in which successive members of the same family practised for a century or more were not unusual, the sons and nephews of medical men often following in their relatives' footsteps.[4] James Threapland Warburton, Joseph's uncle, was an apothecary in Wibsey. A notebook which survives was first used by Edward, Joseph's father, for his weaving business and later by James Threapland in which he recorded visits to his patients and his accounts and prescriptions (see notes 2 and 3 above).

Nothing is known about Joseph's education until he was apprenticed at around the age of 14 years to his uncle James Threapland Warburton in about 1800 for a period of

1. Richardson, B. W. *The Life of John Snow,* MD. in Snow, J. *Chloroform and other Anaesthetics* (London, Churchill, 1858).
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seven years.[5] This young age was then the usual time to begin an apprenticeship to a surgeon-apothecary. Joseph's family apprenticeship would have had the advantage of the premium for a relative usually being waived or greatly reduced to a token amount. Furthermore, an even greater advantage of family apprenticeships was that the son or nephew, after completing his training, was often introduced into the established practice without the expense of buying a partnership (see note 4 above). In Joseph's circumstance, however, this did not happen. In 1807, after completing his apprenticeship, he left the Wibsey practice to join the practice of a Dr Strother in Pateley Bridge,[6] at first as his assistant. The reason that Joseph did not join his uncle's practice may have been because James Threapland wished his own son, Joseph's cousin, to follow him in the practice. This son, born in 1794, was also named James Threapland and did, indeed, succeed his father in due course.

JOSEPH WARBURTON'S MEDICAL EDUCATION

The early nineteenth century was a period of medical reform during which the unqualified 'apothecary' or 'surgeon' evolved into a qualified and licensed surgeon-apothecary who later became known as a general practitioner (see note 4 above). Before the Apothecaries Act of 1815, medical education was diverse and practice unregulated. Nevertheless, a scheme for the training of surgeon-apothecaries had gradually emerged. This usually included apprenticeship to a respected apothecary, attendance at courses of lectures and a period of attachment to a hospital. After the Act a similar formal scheme became the compulsory national training programme for apothecaries in England and Wales. This comprised apprenticeship to an established practitioner for at least five years, then a period of hospital training and attendance at prescribed courses of lectures before the student was permitted to sit the examination for a licence to practice. This examination was the responsibility of the Society of Apothecaries of London and the qualification thereby granted was Licentiate of the Society of Apothecaries (LSA). Many students also sat the examination for Membership of the Royal College of Surgeons of England (MRCS).

Following the Apothecaries Act, all those who were principals in practice before 1815 were exempted from licensing and were known as 'pre-1815' medical men. For example, Joseph's uncle, James Threapland Warburton, was a pre-1815 medical man and had no formal medical qualifications. Those in training or working as assistants in 1815, however, were required to complete the new training and sit the LSA examination. Hence Joseph Warburton later took time off from Dr Strother's practice in Pateley Bridge in order to qualify. On 23rd January 1816, Joseph was admitted as a pupil of Mr R. C. Headington, Surgeon to the London Hospital (Fig. 1), for a term of six months.[7] Joseph probably chose the London Hospital because of Mr Headington's high reputation. He was born in 1774 or 1775, elected Assistant Surgeon at the hospital on 2nd May 1797 and full Surgeon on 5th June 1799. A bust of Mr Headington was discovered recently at the London Hospital.[8] In 1816, he was known as a good operator but as early as 1804 was renowned for his lectures, some of which were reported in the *Lancet*. He was later President of the Royal College of Surgeons and a member of the Committee of the College on surgical education which proposed establishment of the new grade of Fellows

5. Guildhall Library, London. Ms. 8241/1, p. 86.
6. Ward, C. W. 'Notes Recorded by Dr Ward of Drs H. Craven, Petch and C. W. Ward, Fog Close House, 27th July 1952', Ms. Nidderdale Museum, Pateley Bridge.
7. The Register of Surgeon's Pupils at The London Hospital 1785–1830. The Royal London Hospital Archives. Ms. MC/S/1/2.
8. Evans, J., Blandy, J. 'Richard Clement Headington 1774–1831', *The London Hospital Gazette* 1992, 19, pp. 32–34.

Fig. 1. Engraving of the London Hospital, *c.* 1829.

of the College (see note 8 above). Ever since, Fellowship of the Royal College of Surgeons (FRCS) has remained a standard higher qualification for surgeons in England and Wales. He died in 1831.

During his training at the London Hospital, Joseph Warburton attended lectures in chemistry, materia medica, anatomy and physiology as well as the theory and practice of medicine. At the end of his training, the London Hospital House Committee Minutes of a meeting held on 25th June 1816 recorded that he was granted a Certificate of Attendance. Two days after obtaining this certificate, Joseph Warburton passed the examination for the LSA and then presumably returned to Pateley Bridge. Unfortunately, neither the London Hospital records nor those of the Society of Apothecaries provide any further information about his family, his home or where he stayed while in London in 1816.

JOSEPH WARBURTON IN PATELEY BRIDGE

Pateley Bridge is a small market town in the valley of the River Nidd in Yorkshire, situated about 14 miles from Harrogate and 12 miles from Ripon (Fig. 2). There is one narrow main street extending from the hills in the east, westward to the bridge over the Nidd, much as it was in the early nineteenth century.[9] It remains the principal town in upper Nidderdale, an area which then included the parishes of Stonebeck Up, Stonebeck Down, Fountains Earth, Bishopside (in which Pateley Bridge was situated) and Brewerley. The upper valley had a population of just under 4,500 at the 1831 census.[10] The major sources of employment in the area were in agriculture, in lead mining in the hills to the west of Pateley Bridge and in the spinning and weaving of flax. The flax mills were located along the river below the town, the largest of which was at Glasshouses owned by the Metcalfe family, one of the leading families in the neighbourhood.

9. Grainge, W. *Nidderdale; or an Historical, Topographical and Descriptive Sketch of the Valley of the Nidd* (Pateley Bridge, Thomas Thorpe, 1863).
10. Jennings, B. (ed.) *A History of Nidderdale*, 3rd edn (Pateley Bridge, Local History Group, 1992).

Fig. 2. Photograph of Pateley Bridge, *c.* 1900.

When Joseph Warburton arrived in Pateley Bridge in 1807 he is likely to have resided at Dr Strother's home. After qualifying, Joseph became a partner but the date of the partnership is not known. The earliest recording of the partnership to be found was in the Baines Directory of Yorkshire in 1822.[11] Joseph married a local girl on Christmas Day 1815, shortly before he went to London in January 1816 to complete his training and to sit his medical examinations —

> Joseph Warburton of this Parish (Pateley Bridge) and Harriet Thackery of the Parish aforesaid were married in this chapel by Licence this 25th December 1815 by me Wm Neeson Minister. This marriage was solemnized between us Joseph Warburton, Harriet Thackery, in the presence of Wm Kettlewell and Thos Richardson.[12]

The wedding would have been at St Mary's Church, Pateley Bridge. The present St Cuthbert's Church, which replaced St Mary's, was not built until 1827.[13] Joseph may have taken his young bride with him to London on a working honeymoon when he started 'walking the wards' at the London Hospital on 26th January 1816. When he returned to Pateley Bridge in June of 1816 it is likely that the couple set up house on their own. Joseph and Harriet had at least three children. Their first child, a son Joseph named after his father, was born in 1816 and baptised on 27th October that year. Their second child was a daughter, Anna, who was probably born in about 1820. Their second son, Edward Warburton, was born in 1822 and baptised on 25th October in the same year. No records of any other children in the family were found.

11. Baines, E. *The History, Directory and Gazetteer of the County of York*, Vol. 2, East and North Ridings (1823).
12. N(orth) Y(orkshire) C(ounty) R(ecord) O(ffice), Northallerton, Pateley Bridge Marriage Register 1815.
13. Swires, M. The Church of St Mary Pateley Bridge. Ms. Nidderdale Museum, Pateley Bridge.

JOHN SNOW, JOSEPH WARBURTON'S ASSISTANT 1834–1836

John Snow was born in York on 15th March 1813. Little is known of his early education, except that he went to a private school in York. In 1827, he began his medical training as an apprentice to William Hardcastle in Newcastle-upon-Tyne. Here, in 1832, he gained experience of cholera in the mining village of Killingworth, soon after the disease had entered the country. He left Dr Hardcastle's practice in 1833 and worked as assistant to Dr Watson in Burnopfield, County Durham for 12 months before joining Joseph Warburton in Pateley Bridge, probably in the autumn of 1834 —

> Leaving Burnop Field in 1834–35, he revisited his native place, York; made a short stay, and thence to the half-inaccessible village called Pately Bridge, in Yorkshire, to assistant it (this is as printed in Snow's book but, probably should read 'to an assistantship') with Mr Warburton, surgeon there (see note 1 above).

It is not known why Snow chose to become an assistant rather than follow the usual course for a young apothecary of continuing his training in hospital and attending lectures so that he could sit the LSA examination. Ellis[14] suggested that Snow, who came from a poor family, was likely to have been short of money and wished to earn enough to continue his medical education in London. He was apparently unhappy in his first assistantship in the Burnopfield practice and consequently probably decided to move away as soon as his contract allowed, after 12 months (see note 14 above). Perhaps he decided on a rural practice in Yorkshire because a vacancy was available and it was not as far away from home as County Durham. He may even have known of the reputation of the Warburtons of Bradford and Pateley Bridge and so sought a post with them.

In Pateley Bridge, Snow would have lived in the Warburton family home and surgery, Fog Close House, which had been built for Joseph Warburton in 1829 (see note 6 above). This remained the house of the local doctor until after the Second World War and still stands today close to St Cuthbert's Church (Fig. 3). It seems likely that by the time Snow arrived in the practice Dr Strother had retired. Indeed, it may have been Dr Strother's retirement which prompted Joseph to take on an assistant at least until his eldest son had qualified.

The household at Fog Close House, when Snow joined the practice, would have consisted of Mr Joseph Warburton and his wife Harriet and their children. Their son Joseph, aged about 18 years, was then apprenticed to his father, having begun his apprenticeship in 1831 (see below). Anna aged about 15 years and Edward aged about 12 years were both probably still at school. In addition, the Warburtons would have employed living-in servants. Seven years later, at the 1841 census taken on Sunday 6th June, the census enumerator's return listed seven people in the household at Fog Close House. Joseph Warburton aged 50 years, Surgeon Apothecary, and Harriet his wife aged 45 years, Joseph aged 20 years who had qualified in 1837 and was in practice with his father, Anna aged 20 years had no recorded occupation although she later became a teacher and Edward aged 15 years who was then apprenticed to his father. All were born in the County of Yorkshire. The servants were Edward Sugden aged 25 years, Journeyman to surgeon, born outside the county and Mary Thackery aged 15 years, born in Yorkshire. In the 1841 census the enumerators' returns expressed ages over 15 years to the lowest term of five years, i.e. 15, 20, 25, etc.,[15] so that although Joseph senior was recorded as aged 50 years, he was in fact aged 55 years; Joseph his son and Anna his daughter were

14. Ellis, R. H. *The Case Books of Dr John Snow* (London, The Wellcome Institute for the History of Medicine, 1994).
15. Higgs, E. *Making Sense of the Census*, Public Record Office Handbook No. 23 (London, HMSO, 1989).

Fig. 3. Fog Close House, Pateley Bridge, 1994.

both recorded as aged 20 years but Joseph was aged 24 years and Anna aged about 22 years; Edward would have been 18 or 19 years of age.

Snow was apparently a strict vegetarian by the time he arrived in the Warburton household in Pateley Bridge in 1834. He had been persuaded to adopt this diet by his study of the book *The Return to Nature or, a defence of the vegetable regimen*, by John Frank Newton, while he was an apprentice in Newcastle. Newton's work was published also in the journal *The Pamphleteer* and describes his own family's vegetarian diet —

> Our breakfast is composed of dried fruits, whether raisons, figs or plums, with toasted bread or biscuits, and weak tea, always made of distilled water, with a moderate portion of milk in it. The children, who do not seem to like the flavor of tea, use milk with water instead of it. When butter is added to the toast, it is in very small quantity. The dinner consists of potatoes, with some other vegetables, according as they happen to be in season; macaroni, a tart, or a pudding, with as few eggs as possible: to this is sometimes added desert. Onions, especially those from Portugal, may be stewed with a little walnut pickle and some other vegetable ingredients, for which no cook will be at a loss, so as to constitute an excellent sauce for all other vegetables. As to drinking, we are scarcely inclined, on this cooling regimen to drink at all; but when it so happens, we take distilled water, having a still expressly for this purpose in our back-kitchen.[16]

If Snow followed this or a similar regime when he arrived in Pateley Bridge it is very understandable that he caused surprise in the household and in the neighbourhood. His biographer wrote —

16. Newton, J. F. 'The Return to Nature or, a defence of the vegetable regimen; with some account of an experiment made during the last three or four years in the author's family', *The Pamphleteer* 1822, 20, pp. 97–118.

He was a vegetarian then, and his habits puzzled the housewives, shocked the cooks, and astonished the children. His culinary peculiarities were, however, attended to with great kindliness (see note 1 above).

Snow would have found the rural practice in Nidderdale very different from the practices in industrial Newcastle and the nearby mining villages of Killingworth and Burnopfield. Loudon (see note 4 above) describes the conditions of such rural practices in the nineteenth century and refers particularly to the practitioners' need for a good reliable horse, the most essential piece of equipment and usually the most expensive in country practices. A horse and carriage would not have been suitable for many of the moorland roads in Nidderdale at that time, but the two main turnpikes to Ripon and to Knaresborough would have been fit for wheeled traffic (see note 10 above). Although a horse and carriage were usually too expensive for a country practitioner, Joseph's employment of Edward Sugden, a journeyman, at the time of the 1841 census suggests that he may have had a carriage and probably more than one horse. Certainly, Snow would have had the use of one of Joseph's horses for his visits and by the end of his stay in the practice must have become an experienced horseman —

Eighteen months at Pately bridge, with many rough rides, a fair share of night work, a good gleaning of experience, and this sojourn was over (see note 1 above).

Richardson mentions that Snow became a supporter of the temperance cause while he was in Newcastle (see note 1 above), an interest which he developed during his eighteen months in Pateley Bridge by attending local lectures on the subject. Mr John Andrew and Mr Pallister from Leeds, both leading temperance campaigners in Yorkshire,[17] visited the town several times in 1835 and the young Dr Snow attended some of their temperance meetings. He was obviously influenced by them, accepting the principles of total abstinence, and took the pledge.[18] Snow may well have attended the great temperance festival which took place in Leeds on Christmas Day 1835 and over which Mr Andrew presided (see note 17 above).

One of John Snow's brothers, Thomas Snow, who later became the vicar of Underbarrow in Cumberland, was also an enthusiastic supporter of the temperance movement. He often contributed articles to *The British Temperance Advocate*. In one of these, he records that he spent a day with John in the environs of Ripon in June 1836 and visited the lovely park of Studley. Here John read to him the text of a lecture on temperance which he had given earlier that month in Pateley Bridge. This was probably John's first public lecture on the subject. Fifty years later, Thomas found the text of John's lecture in some papers sent to him by his sisters from York, and published it in full.[19] Thomas mentions that his brother went to Leeds later in the month to attend a discussion on temperance. This was likely to have been the great public meeting held on 25th June, mentioned by Pallister (see note 18 above). John then returned to York, probably directly from Leeds, to visit his parents and there played a part in creating the York Temperance Society.[20] The Warburtons were probably sympathetic to the temperance cause, if not active supporters, because Edward Warburton is recorded in his obituary as promoting activities to improve the circumstances of the working classes. In particular, he was one

17. Winskill, P. *Temperance Standard Bearers of the Nineteenth Century* (1897), pp. 55, 296–97.
18. Pallister, W. A. 'Some Reminiscences of a Pioneer', *The British Temperance Advocate*, 1885, June, pp. 85–86.
19. Snow, T. Doctor's Teetotal Address Delivered in 1836, *The British Temperance Advocate* 1888, November, p. 182; 1889, January, pp. 20–21.
20. Snow, T. 'The Beginning of the Society in York', *The British Temperance Advocate*, 1886, December, pp. 195–96.

of the directors of the Pateley Bridge Public Cocoa House Company Ltd intended to provide a healthier alternative to public houses and the consumption of alcohol.[21]

Despite the hard work and the rough rides, Snow enjoyed his stay in Nidderdale and became a long-standing friend of the Warburtons —

> Some few years ago a friend of mine went to the same village, by the recommendation of Dr Snow, as assistant to the present Mr Warburton of that place, a son of Dr Snow's 'old master'. The circumstances of this recommendation often led Dr Snow to refer to his life at Pately Bridge in our conversations. He invariably, on such occasions spoke of Mr Warburton, his 'old master' in terms of sincere respect, and depicted his own life there with great liveliness (see note 1 above).

In the Autumn of 1836, Snow left his home in York and travelled to London to complete his medical education. There he attended the Hunterian School of Anatomy and the Westminster Hospital. In 1838, he qualified LSA and MRCS. In 1843, he graduated MB in London University, proceeding to MD in the following year. He was active in the Westminster Medical Society to which he was elected a member in October 1837. This Society amalgamated with the Medical Society of London in 1850 and in 1855 Snow became President.[22] Later, Snow achieved national fame in epidemiology by discovering the mode of spread of cholera[23] and in anaesthetics by designing an inhaler for ether.[24] His fame was such that he was called upon to administer chloroform to Queen Victoria at the birth of her son, Prince Leopold on 7th April 1853 (see note 14 above). John Snow died in 1858 at the young age of 45 years following a stroke (see note 1 above) and was buried in the Brompton Cemetery, London.

JOSEPH'S TRAGIC DEATH IN 1841

Riding on horseback in Nidderdale and visiting patients in the summer months may seem idyllic but on the moorlands with only tracks it must have sometimes been dangerous especially in the winter months and at night. Loudon (see note 4 above) describes some of the recorded accidents which befell country practitioners in the eighteenth and nineteenth centuries. Sadly, Joseph Warburton died tragically in such an accident at the age of 55 years on 30th June 1841, just over three weeks after the 1841 census listed him and his family at Fog Close House (see above). He was thrown from his horse and killed, between Ramsgill and Pateley Bridge (see note 21 above). He was buried in the churchyard of St Cuthbert's church adjacent to Fog Close House. He must have been a very popular and much respected local doctor because a monument, paid for by public subscription, was later erected over his grave.

No contemporary records of Joseph Warburton's tragic death, nor of the erection of the monument over his grave were found in the Vestry Minutes of St Cuthbert's church Pateley Bridge between 1834 and 1844. Neither was mention made of them in local newspapers, the *Harrogate Advertiser* and the *Leeds Mercury*, in July 1841. The Warburton monument, which is in one corner of the churchyard, remains in good condition and the inscription easily legible. When visited in 1994 (Fig. 4), it was surrounded by nettles and churchyard rubbish. The inscription reads as was originally recorded by Grainge (see note 9 above) —

21. Obituary of Edward Warburton, undated newspaper cutting held by Nidderdale Museum, Pateley Bridge.
22. Thomas, H. (ed.) *The Medical Society of London* (London, Heinemann, 1972).
23. Snow, J. *On the Mode of Communication of Cholera* (London, Churchill, 1856).
24. Snow, J. *On Narcotism by the Inhalation of Vapours*, facsimile edn with an introductory essay by Ellis, R. H. (London, The Royal Society of Medicine, 1991).

Fig. 4. The Warburton Tomb, St Cuthbert's Church, Pateley Bridge, 1994.

Erected in Memory of Joseph Warburton, surgeon, by his numerous friends to record their sense of the loss which they have sustained by his premature death, and their respect for the great skill, integrity, benevolence, industry, and energy, which distinguished his character. He practised his profession in this place for thirty-three years, and died June 30th 1841, aged 55.

The date of death was confirmed by the burial register signed by the incumbent, the Revd Stoney.[25] Also recorded later on the monument were the following inscriptions —

In memory of Harriet, wife of Joseph Warburton who died 8th March 1880 aged 87 years.
And of Joseph eldest son of the above who died 3rd July 1890 in his 74th year.
Also of Anna Warburton only daughter of the above who died 4th April 1897 in her 79th year.
In memory of Edward Warburton who died 25th August 1883 in the 61st year of his age.
In memory of Jane wife of Edward Warburton born 18th October 1827 died 1st September 1894.

THE PATELEY BRIDGE PRACTICE AFTER 1841

Joseph Warburton's eldest son Joseph succeeded him in the Pateley Bridge practice in 1846. He had qualified in 1837 and is listed in the 1841 census at Fog Close House with his father as surgeon apothecary so must have been in practice as his assistant or partner —

Joseph Warburton LSA 21st December 1837. Son of Joseph Warburton of Pateley Bridge. An apprentice to his father. Apothecary for 5 years. Indenture dated 14th July 1831. Testimonial of

25. NYCRO, Northallerton, Burial Register of the Chapelry of Pateley Bridge 1841.

moral character; T. U. Stoney, his father. Age, baptised Oct 27th 1816. Lectures 1833. Hospital attendance, 15 months at Leeds General Infirmary.[26]

His younger brother Edward qualified in 1846 —

Edward Warburton LSA 9th July 1846. Son of Joseph Warburton of Pateley Bridge, Yorks. An apprentice to his father. Surgeon and apothecary 5 years. Indenture dated 1st Jan 1839. Testimonial of moral character, Rev T. U. Stoney, incumbent of Pateley Bridge. Age, baptised Oct 25th 1822. Lectures Oct 1842. Hospital attendance, 18 months at the Leeds Royal Infirmary.[27]

Presumably Edward continued his apprenticeship in Pateley Bridge after his father's death in 1841, but as apprentice to his brother, Joseph. The records of the Society of Apothecaries, however, do not refer to this. He is likely to have joined Joseph as a partner in the practice after qualification in 1846 but, by 1851, Edward appears to have been alone in the practice.

In the 1851 census, Joseph is not recorded at Fog Close House. The enumerator's return lists Harriet widow aged 58 years, House Proprietor, Anna aged 32 years, School Mistress, Edward aged 28 years, Medical Practitioner, Elizabeth Kirkbridge, aged 19 years, House Servant and William Hardcastle, aged 24 years, Groom. Furthermore, the Medical Directory for the same year, 1851, does not list Joseph Warburton but only Edward —

Warburton Edw. Pateley Bridge, Yorks. MRCS Eng 1845. LSA 1846. Med. Offr. Dist. Pateley Bridge Union.[28]

It appears that Joseph worked with his father in the practice in Pateley Bridge after qualifying in 1837, and succeeded him after his death in June 1841. By 1851, however, Joseph must have either left the practice or was away, perhaps overseas, since his name was not in the 1851 census at Fog Close House nor in the medical directory for that year.

In 1861, the census enumerator's list shows the Warburton household as being at number 43 Pateley Bent Lane. This address is likely to have been that of Fog Close House although this was not recorded by name. There was Harriet Warburton aged 68 years, head of the household, a widow and proprietor of land and houses, Anna aged 42 years and Edward aged 38 years, General Practitioner. Edward by this time employed an assistant, Charles Shragen aged 21 years, born at North Lafferton (Luffenham) in Rutlandshire. There was just one servant, Ann Walker aged 23 years, born at Stean Beckdown (Stonebeck Down) in Yorkshire. Again, Joseph Warburton is not mentioned although in the 1865 Medical Directory he is listed separately from his brother —

Warburton Joseph, Pateley Bridge Yorksh. LSA 1837.[29]

The Directory indicates that neither Joseph nor Edward made a return for 1865 and their entries were brought forward from the previous year. Joseph's entry shows that he was not registered under the Medical Act of 1858, that is, he had not by then obtained the new licence under this Act to work in clinical practice. It is not known whether he had some other non-clinical medical employment in the neighbourhood or was abroad but retained an address in Pateley Bridge.

26. Records of the Society of Apothecaries, The Guildhall Library, London. Ms. 8241/9, p. 66.
27. *The London and Provincial Medical Directory 1851* (London, John Churchill), p. 521.
28. Records of the Society of Apothecaries, The Guildhall Library, London. Ms. 8241/15, p. 33.
29. *The London and Provincial Medical Directory 1865* (London, John Churchill), p. 540.

By the time the 1871 census was taken, Edward Warburton was married and Fog Close House had been divided into two dwellings. The census enumerator's return shows that one dwelling housed his mother, Harriet aged 78 years, his sister, Ann aged 52 years and May Unwin aged 14 years, a domestic servant, born in Ramsgill. In the other dwelling was Edward, aged 48 years, MRCS General Practitioner with his wife Jane 43 years and a nephew, Thomas Harker, a medical student, all born in Pateley Bridge. In addition, there was an assistant, Beaumont R. Conolly aged 27 years, born in Woolwich, Kent, as well as two servants, Matilda Clovey aged 36 years, cook, and Hannah Green aged 19 years, housemaid. Presumably, Thomas Harker was a nephew of Jane Warburton because Edward Warburton was not known to have had any married sisters.

A year or so later, following the Public Health Act of 1872 which required local authorities to appoint medical officers of health, Edward Warburton was appointed to this new post in Pateley Bridge. This was in addition to his post of Medical Officer to the local Board of Guardians. As Medical Officer of Health he was very active in bringing about improved sanitation and water supplies in the town (see note 10 above).[30] Possibly the influence of John Snow led him to apply for and accept this post and devote his time and energy to the water supplies and sanitation of the neighbourhood. Certainly, he must have been very familiar with Snow's pioneering work on the spread of cholera published in his book in 1856 (see note 23 above). In addition to his medical work, Edward took a prominent part in local education and was one of the first members of the School Board and Superintendent of the Church Sunday School. He is said to have supported every movement which had as its aim the social improvement, recreation and enjoyment of the masses. For example, he was one of the managers of a local savings bank intended to inculcate in the working classes the habit of saving (see note 21 above). The Warburtons were close friends of the Metcalfe family, the mill owners of Glasshouses (see above). In 1843, Miss Warburton, probably Anna, was a bearer at the funeral of Elizabeth Metcalfe and in 1856, Dr Warburton, presumably Edward, proposed the health of Mr and Mrs George Metcalfe at the joint celebration of their wedding and the declaration of peach ending the Crimean War.[31]

In the 1881 census, only three residents were recorded at Fog Close House. The enumerator's return lists Edward, aged 58 years surgeon MRCS England, his wife Jane, aged 53 years and his sister Anna aged 62 years. There were no children or servants recorded. No evidence was found of Edward and Jane ever having any children. A lack of servants, however, seems unlikely and failure to record them may have been due to their absence on the day of the census which was taken on Sunday 3rd April 1881 (see note 15 above).

The Warburton medical practice may have ended on the death of Edward Warburton on 25th August 1883 at the age of 61 years. Ward (see note 6 above), however, wrote that Joseph succeeded his father and died in 1891, aged 75 years. Ward also states that Dr Lumsden joined Joseph Warburton as assistant and later succeeded him. Dr Lumsden died in 1932. So it is possible that after Edward died in 1883, Joseph returned to the practice, presumably having registered under the Medical Act of 1858, and continued as the Principal until his death seven years later, being then succeeded by Dr Lumsden. The 1891 census enumerator's return does, indeed, list, at Fog Close House, George Lumsden, head of the household, aged 36 years, a surgeon, born in Hull. Also Arrabella, his sister aged 26 years, born in Canterbury Kent, and who presumably kept house for

30. Correspondence columns in undated newspaper cuttings held by Nidderdale Museum, Pateley Bridge. Extract from the Metcalfe family papers, Ms. Nidderdale Museum, Pateley Bridge.
31. Extract from the Metcalfe family papers, Ms. Nidderdale Museum, Pateley Bridge.

him, as well as Harry H. Gummell, aged 27 years, assistant surgeon, born in Leominster, Herefordshire. On census day, a visitor was present, namely, Frederick G. Phillips, aged five years, born in Pateley Bridge, and one servant, Elizabeth Thompson, aged 20 years, born in Norley. Anna Warburton was still in Pateley Bridge, but living on her own at 9 Summershall Place. She is listed in the census enumerator's return as being aged 71 years and living on her own means. There was also a visitor in her house on census day, namely, Annie E. Long, aged 45 years, also living on her own means, born in Otley. Anna died in 1897 in her 79th year (see above).

Whether the Warburton era of medical practice in Pateley Bridge ended in 1883 or 1891, Joseph Warburton and his two sons Joseph and Edward had provided medical care for the people of the town and the surrounding area of upper Nidderdale for over three-quarters of the nineteenth century.

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AN ELECTRICAL UNDERTAKING IN UPPER WHARFEDALE IN THE EARLY 1900s

By Herbert Masterson

BACKGROUND

Large electricity supply undertakings in Britain, both municipal and public, attracted brisk investment in the early years of the twentieth century.[1] Their history is well charted in contemporary publications, which have been a fruitful source of research material.[2] Public companies set up in small communities to provide a local electric light supply have had less attention. Their relative neglect is understandable. Individually, they were less newsworthy, and, as a group, they played only a minor role in rural electrification. In the Yorkshire Dales, as elsewhere, most early village lighting schemes were provided by mill- or land-owners as a secondary activity, usually with no separate commercial identity. There are many examples. The Gill family of New York mill in Summerbridge gave Nidderdale its first electric light in 1891 on a limited scale, benefiting the chapel and a few houses.[3] Further up that Dale at Pateley Bridge, it was estimated in 1900 that investment of £2,000 would enable the surplus power at Mr Wood's corn mill to supply 750 lamps, and by 1903, two companies had applied to the District Council for permission to lay mains in the township.[4] When Mr J. A. Farrer of Ingleborough Hall in Clapham, near Settle, developed a hydro-electric scheme in 1893 to power his sawmill, he also lit the Hall, the Church, the home farm, his agent's house, the village reading room, and provided 13 street lights.[5] Upper Wharfedale examples include Hartlington sawmill, whose water wheel provided a supply for a joiner's shop and some other consumers at Burnsall.[6] The Institute at Skireholme, adjacent to the village paper mill, had a large billiard room and kitchen lit with electric light,[7] and AC supplies were provided later at both Hebden and Kilnsey. There was also a municipal installation — Bradford Corporation decided in 1911 to provide a dedicated generating facility at its Consumption Sanatorium for Women at Edge Side on the Grassington-Hebden road.[8]

Of the 20 or so small[9] electric light undertakings recorded in contemporary electrical journals as registered public companies in England in the first decade and a half of the twentieth century, some seem to have left no record beyond the fact of company

1. Byatt's data indicate investment of £45m in the first decade, representing about 2% of the Gross Domestic Capital formation of that period (Byatt, I. C. R. *The British electrical industry 1875–1914* (Oxford, 1979)).
2. For an extensive review, see Hannah, L. *Electricity before nationalisation* (London, 1979).
3. Jennings, B. (ed.) *History of Nidderdale* (York, 1983), p. 261; Barley, K. M. *Nidderdale* (Nidderdale Museum, 1991), p. 5.
4. Electrical Engineering 25 (1900), p. 608; 31 (1903), p. 210.
5. Farrar, Dr J. A., priv. comm., 1991; Electrical Engineering 46 (1910), p. 581. The Agent was also allowed a power point for an electric kettle, on condition it was not used during church services.
6. Dobson, J. priv. comm., 1993.
7. Crowther, J. *Silva Gars* (Keighley, 1930), p. 95 '... in which the work people who come from a distance, dine'.
8. The £20,500 scheme, including an electric light installation costing £1,150, provided accommodation for 66 women patients. (Bradford Council Papers BB C.1.21.8.)
9. Taking a capitalisation of £1,500 as an upper limit for a village undertaking.

TABLE 1 Small Electrical Supply Companies Recorded as Registered in the Early Twentieth Century

Year	Registered Company	Capital	Comment
1902	MARKET DRAYTON E L & P Co Ltd	£1,500	
1903	NOTTINGHAM E L Co Ltd	£1,000	RO: 13 Farmers' Factory, Sherwood St, Notts
1904	BISHOP STORTF'D & STANST'D E L Co Ltd	£1,000	respectively Herts & Essex
1904	BRENTFORD E S Co Ltd	£1,000	RO: Moorgate Court, Moorgate Place, EC
1904	CAMBERLEY E S Co Ltd	£1,000	RO: Moorgate Court, Moorgate Place, EC
1904	DORCHESTER & DISTRICT E S Co Ltd	£1,000	Bristol Trust Ltd will pay formation costs for £200 fee
1904	HAYWARDS HEATH E S Co Ltd	£1,000	RO: Moorgate Court, Moorgate Place, EC
1904	KINGSWOOD E S Co Ltd	£1,000	Bristol Trust Ltd will pay formation costs for £200 fee
1904	MARLBOROUGH E S Co Ltd	£1,000	Bristol Trust Ltd will pay formation costs for £200 fee
1904	PADDINGTON E S Co Ltd	£1,000	RO: 19 Carnaby St, Golden Sq, W
1905	NEWQUAY E L & P Co Ltd	£1,500	Acquiring transfer of NEL Order 1904
1907	MISSENDEN & Dist. E L & P Co	£1,000	To supply Gt & L M, & Lee in Bucks. RO High St, Amersham
1907	NEWARK E S Co Ltd	£1,000	RO: 74 Coleman St. EC
1909	GRASSINGTON E S Co Ltd	£1,000	Min sub £100. RO: 51 King's Arcade, Bradford
1912	OXFORD E L & P Co	£1,000	
1912	COLNE VALLEY E S Co	£ 200	RO 50 Queen Anne's Gate SW
1912	BOURTON ON THE WATER E L & P Co	£1,250	RO. T S Jones 54 New Broad St EC
1913	KETTLEWELL E S Co Ltd	£ 625	Sec: WP Inman; 400 lamps capacity
1913	SOMERBY E L Co	£1,000	Melton Mowbray

registration[10] (Table 1). Some prospered, as at Brentford, which found profitability in redistributing a bulk supply from the Metropolitan Electricity Company, before being bought out by Brentford Gas Company in 1914.[11] Of the others, the remaining Board of Trade records of dissolved companies[12] show that nine of them never traded at all.[13]

10. Perhaps, like some larger schemes, they did not get off the ground. In 1912, a company at Lytham seeking £10,000 initial capital had only 21 applications totalling £1,357, and was abandoned. (Electrical Engineering 8 (1912), p. 79).)

11. Electrical Engineering 10 (1914), p. 154 *et seq.* However, most urban companies were municipalised sooner or later by the operation of the compulsory purchase provisions of the Electricity Lighting Acts of 1882 and 1888.

12. Public Record Office (subsequently cited as PRO) records have been stripped to ease storage requirements. Orbell, J. *A guide to tracing the history of a business* (Aldershot, 1987), p. 44 *et seq.*

13. Marlborough, Camberley, Bishops Stortford, Newark, Missenden, Dorchester, Paddington, Haywards Heath; even if the Nottingham company did trade in parallel with the municipal undertaking established in 1900, [Muirhead, J. H. *Birmingham institutions* (Birmingham, 1911)] it ceased in 1905 through the death of its manager. PRO BT 31/28347.

In particular, those sharing a common Registered Office seem to have been speculative company registrations by non-local entrepreneurs which came to nothing.[14]

Only two small Yorkshire companies are listed, and they are both in Upper Wharfedale. The Grassington Electric Supply Company Ltd was set up in 1909,[15] after two years spent canvassing support, and even then had secured less than a fifth of its £1,000 initial capitalisation when contracts were signed. By contrast, the Kettlewell Electricity Supply Company Ltd was inaugurated in 1913[16] with its capitalisation of £650 already paid-up. It enjoyed the support of Mr Ottiwell Robinson JP, a wealthy mill- and land-owner living in the village, noted for his local benefactions,[17] and it was able to tempt the competent Skipton engineer, John Banks, away from his allegiance to the larger Grassington company to set up the Kettlewell system.[18] With a compact distribution area and little need for development, the Kettlewell company enjoyed business stability. The Grassington company with a much larger potential customer catchment area, was tempted into continual expansion which its access to capital could barely support. In origin, it was a self-help enterprise by local entrepreneurs determined to improve the amenities of their community. It remained a small business run by directors elected by shareholders. Directors' meetings seldom attracted more than the necessary quorum. General meetings of shareholders also drew small numbers, and often were not representative of shareholdings. Retention of competent staff was difficult and adequate capital provision always elusive. Despite this, the company succeeded in providing a supply to an extending customer base in this Dales community for over a decade. A review of its history offers an opportunity to explore how business was conducted in this type of village enterprise, and how those who managed it responded to the various influences exerted on them.

SUMMARY OF COMPANY HISTORY

There was a will in Grassington at the turn of the twentieth century to attract tourists and new residents in order to revive the village fortunes,[19] which had slumped in the 1800s when two of the main industries of the area collapsed. Employment at the local mill at Linton had ended about 1860,[20] and underground lead mining had closed in 1877, killed off by cheap imports, mainly from Spain, with which the deep and thin-veined local mines could not compete.[21] Between the Census years 1851 and 1891, the population had dropped from 1,138 to 480. A group of local people formed the Grassington Waterworks Company Ltd in 1887 to renew the village water supply,[22] and a sewerage system was installed.[23] When the Yorkshire Dales Railway reached the area in July 1902,[24] it brought not only tourists but also several wealthy new residents from

14. A solicitor, director of the Bristol Trust Company, was a director also of 14 registered electricity companies. PRO BT 31/17342.
15. PRO BT 31/103392.
16. PRO BT 31/125980.
17. Craven District Household Almanac (1929), p. 212; (1932), p. 67.
18. Craven Herald (1912), November.
19. Harker, Rev. B. J. *The Buxton of the North* (1890). The larger Ingleton company, inaugurated in 1900 (PRO BT 31/60796) had a similar motivation. 'The growth [of Ingleton] as a health resort had made the inconvenience from insufficient lighting very keenly felt.' Electrical Engineering 25 (1900), p. 166.
20. Raistrick, A. *The Pennine Dales* (London, 1968), p. 122. See also n. 27.
21. Raistrick, A. *Lead mining in the Mid-Pennines* (Truro, 1973), p. 116; Raistrick, A. 'Linton-in-Craven; a study of a Pennine Dales parish' *Geography* 23 (1938), pp. 15–24; Speakman, C. *Portrait of North Yorkshire* (London, 1986), p. 151.
22. Led by Joseph Mason, cotton manufacturer of Skipton and owner of Linton Mill. (Harland, R. S. priv. comm., (1996); Dalesman (1967), February.)
23. Grassington & District Traders' Association, *Official Illustrated Guide to Grassington & District* (undated).
24. Baughan, P. E. *The railways of Wharfedale* (Newton Abbot, 1969), p. 190; Joy, D. *Yorkshire Dales railway* (Clapham, 1983), p. 19 *et seq.*

Bradford, now within commuting range. That city's Corporation had installed Britain's first municipal power station in 1889[25] and its more affluent citizens were already accustomed to electric light in their homes. Although electric lighting in the early 1900s was confined generally to commercial properties and large private houses in towns,[26] a village project in Grassington could have expected reasonable support. When John Fielden, a Skipton tailor, bought the unoccupied[27] five-storey Linton water mill in 1907,[28] possibly as a speculation influenced by the Lancashire mill building boom of 1904–08,[29] John Crowther, the Grassington chemist and a local worthy, saw an opportunity of basing a village lighting scheme there.[30] His interest came to the notice of a Bradford electrical contractor, Charles Pullan, who recommended the installation of a water turbine[31] and generator[32] on the washout sluice of the upper of Linton mill's two weirs[33] (Fig. 1). Mr Fielden agreed to lease the water rights,[34] and the Grassington Electric Supply Co. Ltd (GESCL) was formed in 1909 to raise capital to implement the scheme. The first directors were Messrs Crowther and Fielden, with Mr Sam Lee JP as Chairman.[35] GESCL's powerhouse was a small wooden building[36] with a corrugated iron roof, and a lean-to over the turbine pit (Fig. 2). Cables crossed the river to a distribution board at the bottom of the village and current was delivered at 230v to consumers by cables supported mainly on brackets attached to chimneys. Major Roundell of Gledstone Hall[37] presided over the official opening (Fig. 3) which was marked by a fifty-strong procession and followed by a hotel dinner lit by the new electric light.[38]

Much of the management of the company in its early years fell to Mr Crowther. He found capital hard to raise, profitability too low to pay dividends, and competent engineers difficult to retain. There was also an expensive dispute with Mr Pullan.[39] Despite this, company income rose acceptably and Grassington Parish Council was persuaded, eventually, to replace its 24 street oil lamps with electric light.[40] A special Shareholders' Meeting,

25. Hannah, L. *op. cit.* in n. 2, p. 8.
26. Hannah, L. *op. cit.* in n. 2, pp. 186–189. Electricity in the home extended to only 6% of the housing stock in 1919, and to just over 60% by 1938.
27. 'Last running 35 years ago' Craven Herald (1912), December.
28. Mr Fielden bought Linton and Hebden mills from the executors of Joseph Mason, (deed of January 1907), taking a mortgage from the vendors against the security of the properties. This was replaced by a mortgage from the London Joint Stock Bank Ltd (deed of February 1912) and discharged when Linton mill was sold to Mr Lowcock. See also n. 44.
29. Farnie, D. A. *The textile machine-making industry and the world market, 1870–1960*. Business History (1990, October), p. 154.
30. Linton mill waterwheel powered some level of electric lighting from 1907 (Craven Herald (1912), December) but was inadequate for a village lighting scheme.
31. The turbine, supplied by Jas. Gordon & Co. (London), was a vertical shaft mixed-flow *Samson* type, one of many trade names used by manufacturers specialising in high-speed turbines for small water head locations (the head at Linton was only 3 to 4 m). Wilson, P. N. *Early water turbines in the United Kingdom*, Trans. Newcomen Soc. 31 (1957–58), pp. 234–5.
32. Phoenix Dynamo Manufacturing Co., Thornbury, Bradford, rated 20 kW at 1100 rpm.
33. Electrical Review 65 (1909), p. 837; Electrical Engineering 44 (1909), p. 695. 'One of the least expensive of schemes, costing £800-£1,000; it would have cost twice as much if a weir had been necessary.'
34. One of several indications of his speculative purchase of Linton mill. Owners were usually obsessively possessive of water rights.
35. Mr Lee, then 70, was a lead miner in Grassington in his youth, and when that employment failed, made good in a second career in Preston (Preston Guardian (1912), March). He had retained a benevolent interest in his home town, and supported GESCL by taking 200 shares, but died 1912 (Craven Herald (1912), March).
36. Washed away once during construction, Craven Herald (1991), May.
37. Conservative candidate for the Skipton Parliamentary Division. (Daily Sketch (1909), November.)
38. Craven Herald (1909), November.
39. Over the cost of meeting Post Office requirements where GESCL's line crossed their wires. At arbitration, the settlement was in Mr Pullan's favour.
40. Yorkshire Post (1910), September.

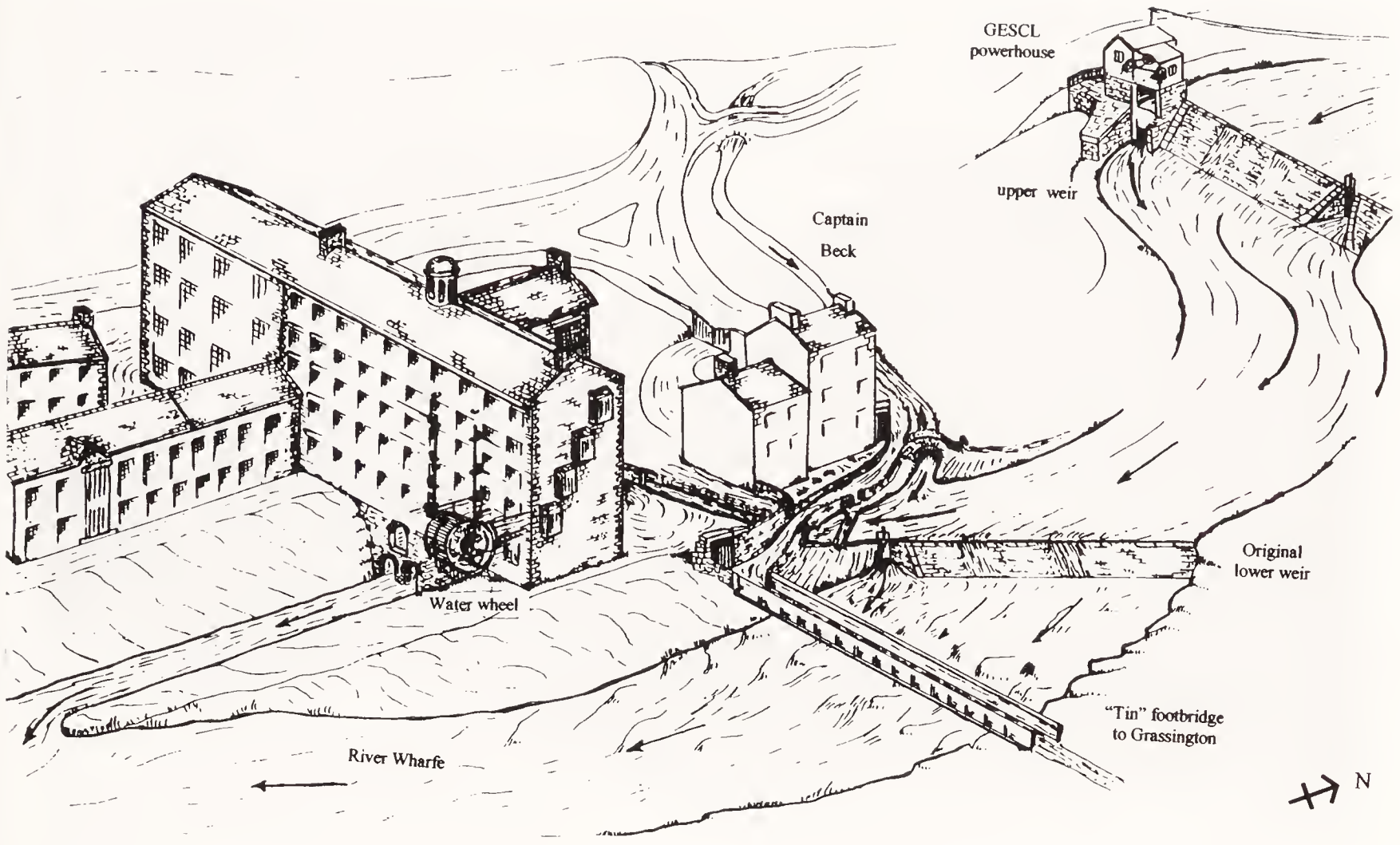

Fig. 1. GESCL Powerhouse and Linton Mill in 1909

however, was required in early 1911 to address the capital shortfall. Mr Alfred Wall of Grassington and Pontefract, by taking sixty of the unsold shares, gave others confidence, and Mr Charles Lowcock, another Skipton tailor,[41] capped the proceedings by taking the last forty. However, the need for capital soon outstripped the original capitalisation. By mid-1911, Messrs Crowther, Lowcock, Wall, and Elliott[42] were committed to bonds to the bank totalling £150, and an increase in share capital to £1,500 was agreed at the following AGM. Mr Crowther resigned, and Mr Lowcock was elected chairman in his place.[43]

About this time, Mr Lowcock bought a half share in Linton mill from Mr Fielden,[44] and formed with him the Linton Mill Estate Co. Ltd (LMECL) to manage it. He also formed the Linton Mill Manufacturing Co. Ltd with his two sons, Francis and Edward, to run a cotton manufacturing business there. Early in 1912, Linton mill burned down[45] (Fig. 4). Although GESCL plant was unaffected, the fire had a major influence on that company's future. During reconstruction,[46] LMECL replaced the old mill waterwheel with a large water turbine which not only powered a rope drive to the mill main shaft but also ran a generator more than twice as large as GESCL's. In meeting their growing

41. And former employer of Mr Fielden.
42. A Bradford coal merchant resident at Hardy Grange in Grassington, a shareholder, and future director, of GESCL.
43. Mr Lowcock reported Mr Crowther had suffered a nervous breakdown. Craven District Household Almanac (1912), November, p. 214; Craven Herald (1912), October.
44. He completed the purchase by deed of January 1913.
45. Craven Herald (1912), January, has Mr Fielden's graphic account of the fire, and of the failure of Skipton's horse-drawn fire engine to attend.
46. It had been insured and was rebuilt as a weaving shed.

Fig. 2. GESCL Powerhouse on upper weir.

Fig. 3. GESCL opening ceremony.

consumer demand, GESCL directors had the new option of buying a supply from the mill company, rather than finding capital for additional generating plant of their own.

1912 had started brightly for GESCL. Grassington Wesleyan Chapel installed electric light[47] and the GESCL system was extended from Grassington to the adjoining township of Threshfield. The number of lights supplied was twice that of the previous year, and

47. Electrical Times (1912), January 11.

Fig. 4. Linton Mill destroyed by fire.

Fig. 5. Linton upper weir breached by flood water.

better use of the company's plant outside lighting-up hours was secured by providing power supplies. When Mr Lowcock chaired the third AGM, there was satisfaction that revenue had doubled. There would be no dividend that year, but the company had made a good profit, and 'was now on the highway to success'. The 500 new ordinary shares had been taken up quickly, half by Mr Wall alone.

But before the year's end, flood water swept away the centre portion of the upper weir[48] (Fig. 5). GESCL lost the use of its in-house generator, and became entirely dependent on the newly-installed LMECL turbine until the weir was repaired in August 1913. Although income had increased by 20%, the company had made a loss. Even so, the shareholders, many of whom were consumers, encouraged the directors to buy a second-hand oil engine from Wheatleys of Leeds. Perhaps they were influenced by a large bill from LMECL for 'a special extra supply' while the GESCL turbine was out of service, but they were certainly concerned about the priority the Lowcocks had given to the mill's needs at the expense of the village lighting supply.[49]

Discussion at the fifth AGM in 1914 was led by Mr Frielinghaus, Mr Wall's nephew and an electrical engineer.[50] His theme was the adverse cash flow position of the company. The oil engine had turned out to be an expensive option, consumers' meters were not tamper-proof,[51] their inaccuracy was not in the company's favour, and the outstanding capital debt was burdensome. He called for a Special General Meeting to consider advertising the company for sale as a going concern. This meeting, held in November, was poorly attended, with Mr Frielinghaus a notable absentee, and the resolution failed.

The number of consumers continued to rise satisfactorily in the early war years, but the GESCL system remained unreliable and directors were unable to retain a competent engineer to deal with it. They found themselves increasingly reliant on LMECL supplies. They decided to buy a 14 year-old National suction gas engine from the Bradford firm of Millar, Dennis & Co., whose director, J. D. Dennis, came to live in Threshfield in 1915.[52] These engines were seen at that time as compact, economical, and normally requiring little attention.[53]

Mr Fielden severed his link with the company about this time, selling his shares to Mr A. J. Plunkett, a coal merchant living in Threshfield,[54] who became the new company chairman.[55] In November 1917, the company had a further influx of new shareholders who had bought Mr Wall's holding following his death the previous year. Two of these, Mr Dennis and Mr F. S. Clayton, another Bradford engineer resident in Threshfield,[56] were co-opted to the board at the AGM to strengthen technical discussion. Revenue had dropped, attributed by Mr Plunkett to the absence of a company engineer for the greater part of the year. By 1918, however, income had doubled again, but the suction gas engine remained unreliable, and there was further dependence on LMECL electricity during the summer water shortage. The distribution system was deteriorating too, and the directors renewed their efforts to engage a competent electrician.

48. Reportedly 'known to have been in a state of decay for fully two years.' Craven Herald (1912), November.
49. GESCL directors decided, at a meeting not attended by Mr Lowcock, to send a formal complain to LMECL.
50. Registry of Wills, Wakefield, 3 (1916), 2264.
51. A common problem of supply companies. Electrical Review 70 (1912), p. 148.
52. Bradford Post Office Directory, 1909; Bradford *Official Handbook* (9th edn, undated), p. 63.
53. Ewing, J. A. *The steam engine and other heat engines* (Cambridge, 1914), pp. 566–68; Clerk, D. *The gas, petrol, and oil engine* (London, 1909), I, p. 32.
54. Central Association Volunteer Training Corps Register (1914), December; Bradford Post Office Directory, 1909; West Riding Registry of Deeds 23 (1915), 406/161.
55. Mr Lowcock declined to succeed Mr Fielden as chairman, possibly in view of his intention to sell up his Skipton tailoring business and retire. Craven Herald (1917).
56. West Riding Registry of Deeds 42 (1919), 461.

A major challenge came in 1919 when LMECL, responding to the post-war cotton boom,[57] decided to buy a large steam-driven power plant for the mill. GESCL directors were asked to commit themselves to a ten-year supply contract, but concluded that 'the company could not enter into a contract to purchase current generated by so large a power-plant as purposed being installed by LMECL owing to the high cost of production compared with this company's requirements'.[58] The GESCL directors still believed the suction gas plant was their cheapest option and decided to get it into full working order. Mr Dennis arranged for one of his Bradford engineers to examine the plant and to instruct GESCL's new engineer, Mr Musto, how to run it. The directors also decided to look for a second-hand 40 kW dynamo to supplement the 20 kW dynamo they already had. This positive line soon faded, faced with continuing difficulties with the gas plant. The directors passed the Mitchell Dennis report to Mr Musto, with instructions to 'effect the necessary repairs at once'. Instead, he resigned. They had paid his expense claim for board and lodging only 'under protest', and since they had been considering 'what they deemed to be necessary in the way of heating and accommodation to make the power house comfortable', it may be they expected Mr Musto to live in there with the plant. By 1920, the GESCL directors had returned to the possibility of taking all their electricity requirements from LMECL, but now found the Lowcock terms unacceptable.[59] The future of GESCL as a separate generating company looked bleak. The directors agreed to follow Mr Lowcock's proposal to canvass shareholders to support a proposal to sell the company.

Although the company's income had increased yet again by 20%, the main business of the tenth AGM was a review by Mr Plunkett of a meeting which directors had held with consumers at Grassington Town Hall. The consumers had been briefed on the difficulties the company faced in continuing to supply electricity at a reasonable price and had been asked 'what material support may be relied on in the event of further capital expenditure being necessary.' Mr Plunkett reported that the directors 'had received much encouragement and indications of financial support if they would present a thoroughly reliable Electric-Lighting Scheme as soon as possible' and they commissioned Mr B. N. Dadge of Brighouse to devise one. Although not recorded as present, Mr Crowther was heartened: 'Business people from "the city" (Bradford, forsooth!) are erecting palatial dwellings, and the struggles of the local electric lighting company are expected soon to be overcome, and develop into a strong corporation ...'.[60] However, when GESCL directors presented Mr Dadge's report, and its costs, in Grassington Town Hall in July, 'the consumers had no alternative to offer to the proposed sale'. By the end of 1920, the company had been advertised for sale and two offers received — £375 from LMECL and £550 from a Mr Fisher — and the directors had accepted the latter. A directors' meeting then heard Mr Lowcock's explanation of a difficulty which had arisen between Mr Fisher and LMECL over the security of tenure of the water rights.[61] In the absence of a resolution

57. Farnie, *op. cit.* in n. 29, p. 153 *et seq.*

58. Their response was not surprising. The installation Mr Francis Lowcock ordered from Newton Bean & Mitchell in September that year was based on a 300 bhp, 150 rpm, condensing Uniflow, the latest type of reciprocating engine. (Perry, F. B. Proc. Inst. Mech. Engrs (1920), 731.) It operated at 160 psi and 600°F, had a rope drive to the main shaft of the mill, and a belt drive to a generator five times larger than GESCL's. It cost £4,000. The engine is now restored. (Masterson, H., YAS IHS Newsletter 43 (1996), p. 15.)

59. Mr Francis Lowcock required 75% of GESCL's gross receipts. He was now a shareholder through purchase of Mr Elliott's shares.

60. Crowther, J. *Silva Gars* (Keighley, 1930), p. xxx.

61. The upper weir had been built about 1790 by previous owners, the Birbeck family of Settle, to provide additional storage in times of drought. (Raistrick, A. *Old Yorkshire Dales* (Newton Abbot, 1967), p. 91.) It was a constant concern of the Lowcocks that this reserve could be drained by GESCL independently of the mill's requirements.

of this problem, the meeting adopted a proposal to put the company into voluntary liquidation, on the grounds that the level of its debts made it legally unable to continue in business. Having decided on this course, the directors then accepted an offer by LMECL, matching that of Mr Fisher, to buy the company. The liquidation proposal was endorsed at an EGM in January 1921, the company secretary, Mr G. J. Harker, being appointed liquidator. The Gazette announced the last General Meeting of the company to be held at the Wilson Arms, Threshfield, on the 17th June 1924.[62] Mr Harker reported receipts of £1,007 14*s.* 4*d.* and payments of £988 19*s.* 4*d.* With the balance of £18 15*s.*, the company declared its one and only payment of 3*d.* in the £, on its paid up capital of £1,500.

COMMENTS AND CONCLUSIONS

Available data on GESCL's performance are sparse (Table 2), but some analysis is possible. Until 1912, the company seems to have made steady progress, despite the unnecessary cost of the Pullan dispute. It was selling most if not all of its production capacity (61% committed by autumn 1910) and its income was sufficient to allow reduction of its initial debt.

Lack of capital from sale of shares was the main problem. John Crowther deplored the lack of support from property owners and the Parish Council in those early years.[63] However, two of the local gentry, Sir Matthew Wilson and his son-in-law, Major Roundell, did take shares.[64] Their interest may well have been to support Major Roundell's political career, but Sir Matthew, in particular, had widespread investment interests and would have expected GESCL to provide a reasonable return. Good electricity companies offered about 5% per annum at that time, with the prospect of additional bonuses. He sent his agent, Mr J. W. Broughton, to the Shareholders' meeting in 1910, and attended the 1914 meeting in person, but was not convinced, apparently, that further investment would be worthwhile.[65] The Parish Council's reluctance to invest,[66] on the other hand, may have reflected the view of the Dales' farmers, who were chided in the local press for their opposition to the use of the parish rates to benefit Grassington dwellers.[67]

The early major investors seemed each to have a personal interest in the company. Mr Fielden already had tenants at the mill[68] and would want to encourage any new rent-paying undertaking on his property. Mr Lowcock, soon to buy Linton mill, would seek,

TABLE 2 Some GESCL performance parameters

YEAR	1910	1911	1912	1913	1914	1917	1918	1919
LIGHTS		240	572		1100			
INCOME, (£)	28	83	154	184		203	391	532
CONSUMERS	33							143

62. London Gazette (1924), May 16, 3983.
63. Crowther, J. *Rambles around Grassington* (York, 1920), p. 7, '... the promoter struggled four years — from 1907 to 1911 — without the slightest help from the Parish Council or property owners.' Also West Yorkshire Pioneer (1910), October.
64. Respectively £50 and £10.
65. In any case, he and Major Roundell were about to join their regiments on war service.
66. Craven Herald (1911), February.
67. Craven Herald (1912), December.
68. Halliwell & Wood, cotton manufacturers, and T. & A. Stockdale, corn merchants.

naturally, to have some influence in GESCL, which held water rights to the mill's upper weir. In a different vein, Mr Lee had by his several benefactions evidenced an enduring fondness for his native village, and Mr Elliott, a substantial coal merchant in Bradford, had retired to live there. They had the will to support GESCL, and the coal industry had provided them both with the means to do so. Although Mr Wall had property investments in the area,[69] and his Frielinghaus relatives lived in Grassington, the size of the Wall-Frielinghaus investment in 1912 suggests he was convinced of the company's future profitability. His nephew's attempt at the 1914 AGM to see the company sold implies that he, an electrical engineer, had lost confidence in that prospect by then. The share sales at the 1911 EGM relieved the immediate capital shortage, but even if the mill dam failure had not then intervened, the early directors, not least Mr Crowther, seemed indisposed to settle for a small, if solvent, enterprise.

Access to the substantial generating capacity at Linton mill enabled the directors to extend their distribution system, and thereby increase their income from consumers. However, consumer dissatisfaction with the quality of supply also pushed them to capital expenditure in old second-hand generating equipment requiring maintenance beyond the level of engineering competence they were prepared to employ.[70] The wave of new shareholders, represented by Mr Plunkett's purchase of Mr Fielden's shares in 1915, and by the group of investors — business people, many from Bradford, and mostly GESCL consumers — who split Mr Wall's large holding equally between them in 1917, seems to have reinforced the trend towards consumer orientation in company direction. Their purchase of shares did not increase GESCL's capitalisation, but they supported GESCL's provision of additional plant and favoured the Dadge plan[71] to augment GESCL's water generation capacity. This would have impinged further on efficient water-power management at the mill, and although Mr Plunkett failed to persuade his fellow shareholders to fund it, the move may have influenced the Lowcocks to consider it was time to buy GESCL out. They had the capital, and the engineering resources at the mill, to make electricity supply the profitable symbiotic enterprise which fellow mill owners had found it to be. Acquiring GESCL would also gain them operational control of the mill site and water supply, which Mr Fielden had let go. It was a commercial opportunity which the Lowcocks were well placed to evaluate and to take.

How did that opportunity come about? One possibility is that there was simply an adverse cash flow unrelieved by corrective management action, perhaps through failure to impose a limit on growth of consumer demand and increase charges sufficiently to fund the enterprise fully. With reservations over the data, particularly for annual expenditure,[72] GESCL's trading position in the last few years of operation is shown in Fig. 6. The company's vulnerability is not obvious here. Nor could the main problem have been funding long-term debt. Interest payment on the outstanding bank mortgage of only £400[73] would have placed little strain on the company.

69. West Riding Registry of Deeds 46 (1906), 697. The owner of building land could welcome electric light development. '... electric lighting has been the salvation of landowners in that it has created a decided demand for land'. Electrical Review 70 (1912), p. 645.

70. Directors' decisions to spend capital on generating plant seem to have been taken always in Mr Lowcock's absence, stirring him in 1914 to threaten protest at the AGM.

71. Its basis was 'to utilise the water power at the top weir as much as possible', with storage in a battery of accumulators.

72. Annual Income data, from AGM reports, are presumed accurate. Annual expenditure is assessed here by summing those individual items recorded in the minutes and probably understates the true total. Some expenditure on plant appears to be retained as capitalised items in accounts which are difficult to interpret without access to balance sheets. However, LMECL charges were very significant and are assumed correct.

73. Liquidator's report, PRO BT 34/103392.

The weight of LMECL charges were rising with growing consumer demand as GESCL acted increasingly as LMECL's agent (Fig. 7).

The impact of this burden seems tolerable too, although subject to the Lowcock's future charging policy. However, the liquidator's report offers further insights. LMECL was owed an additional £146, and was, in fact, the only creditor in a position to threaten liquidation.[74] The report also highlights the trading weakness which left the company vulnerable to this threat. Income was lagging expenditure heavily.[75] While GESCL's debts were more than covered by income due to it, the outstanding debt due from consumers at liquidation stood at over £400, and of this, a quarter was owed by directors and shareholders, past or present. The GESCL Board was reluctant, apparently, to press its fellows for prompt payment, even at this juncture. Certainly, shareholders' long term view was discouraging. No dividend had been paid since inauguration, none was now likely, and recovery of invested capital was doubtful. In this small close community, a perception that payment of electricity bills might prudently be avoided, or at least long delayed, might have spread rapidly. It may well be that it was this inability to collect consumer charges, joined with LMECL's concern that recovery of its growing debt was becoming precarious, which triggered the liquidation decision.

However it came about, the absorption of the GESCL undertaking into the Lowcock family business lead to a step change. Hydro-generation capacity was increased both at the upper weir and at the mill, and the distribution system was mostly rebuilt. This required a much-needed capital injection of about £14,000, but income from the regener-

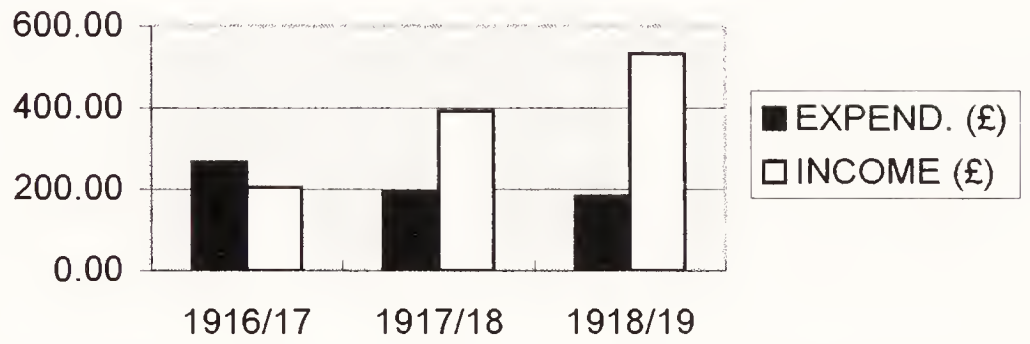

Fig. 6. GESCL Income and Expenditure in closing years (£).

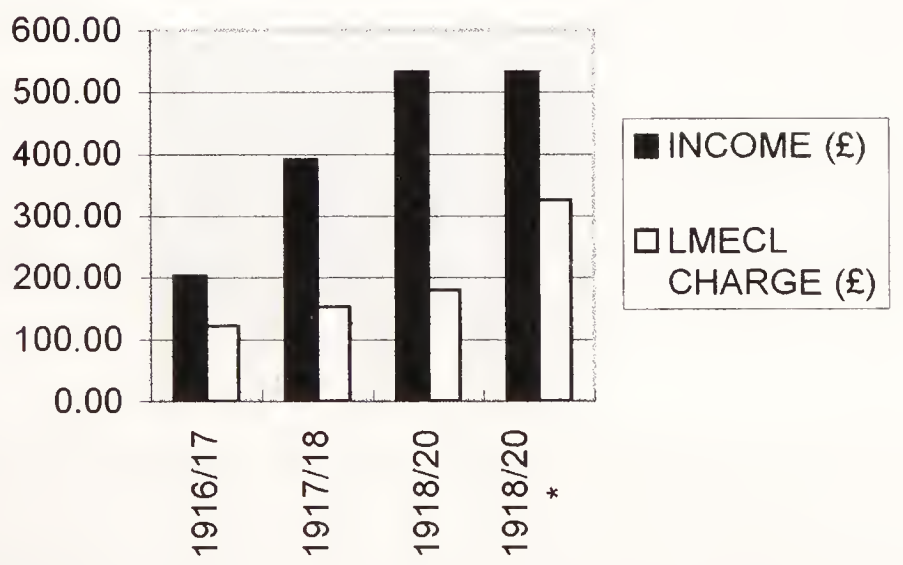

Fig. 7. LMECL Charge v. GESCL Income (£) (* includes LMECL debt outstanding at Liquidation).

74. The 1908 Companies Act (para. 130, section 1; para. 182, section 3) allowed anyone owed more than £50, which a company could not pay within three weeks, to apply for a Court Order for its liquidation; it also allowed the less costly alternative of voluntary liquidation, if endorsed by a general meting of shareholders.
75. The liquidator required two years to recover the outstanding debts from consumers.

ated business, which doubled to £1,000 in the year following take-over, more than doubled again the following year,[76] and Lowcock family companies continued to provide the electricity supply of the area until nationalisation brought connection to the national grid.

ACKNOWLEDGEMENT

Acknowledgement is made to Mr Peter Fethney, Curator of Grassington Museum, for permission to use the minutes of the Grassington Electric Supply Co. Ltd; to the late Mr Griff Hollingshead for his encouragement and for altering his drawing to provide Fig. 1; to the late Mr Jack Dobson for permission to use his notebook which belonged formerly to Mr Harry Moss; to Ms Kirrane, Curator of the Craven Museum, for permission to use Figs. 2, 4 and 5; to the Bradford Telegraph & Argus for permission to use Fig. 3, copied from their 1959 edition; and to the Reference Librarians of Skipton, Bradford, and Preston Libraries and the West Yorkshire Archive Service, for their help.

76. Lowcock, F. W. (1923). Statement in support of a mortgage application.

SHORTER NOTES

THE SEMERWATER CRANNOG: AN ARCHAEOLOGICAL MYTH IN THE MAKING

By R. Martlew and M. W. Holley

In a recent reinterpretation of the evidence for lake-dwellings in Holderness, Van de Noort has commented on the influence of Swiss and Scottish excavations of the nineteenth century on interpretations of the Yorkshire evidence (Van de Noort 1995, 332). Perhaps the best known site of this category is the 'crannog' in Semerwater, near Bainbridge in Wensleydale, due to the popular account by Dr Raistrick of a local legend connected with the site (Raistrick, 1968, 59–60). The location is noted with due circumspection in the Sites and Monuments Record, as the site of an 'alleged' Iron Age crannog, but such caution tends to be overlooked in general references and the existence of the crannog has acquired a measure of acceptance. A reassessment of the recorded evidence for this site reveals an interesting process of archaeological myth-making, and contributes to the current debate on the nature of lake-dwellings.

Since the end of the last century archaeological remains interpreted as lake-dwellings have been found in low-lying areas of eastern Yorkshire. In Vol. 30 of this journal the discovery of a 'pile dwelling' near Costa Beck was reported by M. Kitson Clark (1930). Other pile dwellings have been noted near Barmston (Varley 1968), Ulrome and Skipsea (Smith 1911). As Van de Noort has pointed out, the interpretation of these sites was initially strongly influenced by the evidence from Switzerland. Indeed, in reporting evidence from the Ribble near Preston in Lancashire, Cole drew parallels not only with the remains found by Boynton at Ulrome but also concluded that 'Doubtless there were many lake-dwellings once in this country, as in Switzerland ...' (Cole, 1889, 91).

In his book on the Pennine Dales, Raistrick links a colourful legend to the remains of a 'small platform set on piles in the edge of the lake', revealed by dredging operations some 30 years previously (Raistrick 1968, 59). He does not use the term 'crannog'. Newspaper clippings from 1938, held in the Sites and Monuments Record at the Yorkshire Dales National Park offices at Bainbridge, report a number of finds from around the lake margins following the work to lower the level of the lake. The finds appear to have comprised mostly animal bone, some of which had been worked. A looped bronze spear head was found by a member of a party of schoolchildren who were on holiday in the district. No records are available of where the objects were found, and many have presumably joined the wide range of worked flint from the area in private collections (Manby, 1986, 73 and Fig. 7.5 describes the spearhead, which is on display in the Dales Countryside Museum in Hawes).

The lack of context for any of the finds is only further confused by the brief allusions to structural remains. Raistrick is the only person to mention timbers, and it is not clear whether he saw these at first hand; one of the newspaper reports describes a six-foot wide stone causeway leading into the lake.

Local information has indicated that the 'crannog' was located just off the north shore of the lake, near its midpoint at SD 91748735 (attributed to Mr D. Hall in the SMR, and Mr R. Minnitt *pers. comm.*). A circular patch of reeds at this location was investigated,

along with the adjacent shore and bed of the lake. The reed bed, which is also clearly visible on vertical aerial photographs taken in 1951, was approximately 5 m into the lake at the time of the survey in December 1995, and 20 m in diameter. Underwater inspection failed to identify any evidence of stone or timber structures, and probing of the sediment did not locate any solid structure up to 0.5 m beneath the reed bed. The lake bed along this northern margin is covered with soft sediment at least 1 m in depth, and although water conditions were poor no evidence of structures was found within 50 m of the shore.

Obvious major problems remain with the interpretation of this negative evidence, principally the location and nature of the dredging operations in 1937. No trace was found of the stone causeway referred to in the newspaper report, and in the absence of any detailed record this feature cannot be distinguished from stone footings that continue the line of a field wall into the lake.

However, the fact that a causeway was originally claimed, and the terminology applied to the site, recalls Van de Noort's view that early interpretations 'were almost exclusively determined by the existing paradigm, rather than the archaeological evidence' (Van de Noort 1995, 332). The newspaper reports of 1938 make no reference to timber piles or platforms, and merely generalise about the existence of 'lake-dwellings' on the shores of Semerwater. In 1911, Smith proposed the existence of 'crannogs' in Hornsea Mere, defining them specifically as 'islands adapted for habitation' (Smith, 1911, 593). In the rest of that paper he uses the terms 'lake- dwellings' or 'pile dwellings' to indicate platforms for huts, analagous to the Swiss sites. The first use of the term 'crannog' in relation to the Semerwater evidence is in the Sites and Monuments Record, repeated on the 1 : 10,000 map. However, the specific term has been applied more frequently, and more appropriately, to the artificial island sites of Western Britain. Nothing resembling these island crannogs has been identified in Yorkshire. Stone causeways are a relatively common feature of such sites, but are rarely associated with pile dwellings. Even the circumstantial record that exists does not actually link the causeway at Semerwater to the 'crannog' site, and it may be that they both owe more to 'the existing paradigm, rather than the archaeological evidence'.

The wide range of artefacts collected from the shore of Semerwater, representing activity over several millennia, cannot, out of context, be used to distinguish between pile-dwellings standing in the water, and dry-land sites that have been inundated by rising lake levels. Further progress may be made through a study of the post-glacial sedimentary history of the lake, but, in the absence of archaeological evidence from carefully recorded contexts, the Semerwater 'crannog' must be consigned to the realm of legend.

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AN UNRECOGNISED MARKET AT NAFFERTON?

By D. M. Palliser

T. D. Hardy's edition of the early Close Rolls printed an abstract of letters close sent in the name of the young Henry III to the sheriff of Yorkshire on 31 March 1224. The sheriff was informed that 'we have granted to our beloved and faithful William de Percy that he may have, until our coming of age, a weekly market on Friday at his manor of Paffort', unless that market be to the damage of neighbouring markets'.[1] The reference has not been used by McCutcheon or other writers on early Yorkshire markets, perhaps because the place-name does not correspond to any known Yorkshire manor.

A possible explanation would be that Hardy had misread an initial N for a P, since Nafferton (East Riding) was a Percy manor, held by William and Richard de Percy in the early thirteenth century.[2] Examination of the original manuscript, however, showed that Hardy's transcription was extremely accurate, and that the place-name does read *Paffort*'.[3] Nevertheless, the most reasonable supposition is that a scribal error was involved, in the thirteenth century rather than the nineteenth, and that Nafferton was intended. Dr Allison has noted a short-lived market and fair granted to Henry de Percy in 1304 for the small hamlet of Wansford in Nafferton manor,[4] though not any market grant for Nafferton itself. However, it would be surprising if the Percys had sponsored a market in Wansford without having first secured one for the much larger parent village. In 1609 land in Nafferton was described as 'at the north end of the town nigh the cross',[5] perhaps a market cross. Certainly the reading of the Close Roll entry as Nafferton is sufficiently plausible to justify its inclusion in the latest mapping of East Rising markets in the middle ages, bringing to 43 the number of towns and villages known to have held a market, or at least to have been granted the right to do so, before 1500.[6]

COMPUTERISATION OF THE MANORIAL DOCUMENTS REGISTER

Manors in Yorkshire can now be identified and their records located over the Internet by means of the Manorial Documents Register (http://www.hmc.gov.uk).

The Manorial Documents Register (MDR) records the nature and location of manorial records in England and Wales and has been maintained by the Historical Manuscripts Commission (HMC) since 1959. A three-year project run by HMC in association with the University of York Borthwick Institute of Historical Research has resulted in a revised and computerised version of the sections dealing with the three Yorkshire Ridings.

The database uses 'Microsoft Access' together with 'Active Server Pages' which allow it to be consulted over the Internet. A series of search screens leads users through the database, which is searched by making selections from a series of drop down lists. Having selected the East, West or North Riding, one of four types of searches may be chosen. At the simplest level, records for individual manors can be located by selecting the 'Manor search' option. This will display a list of all the manors in the chosen Riding. The list is arranged in alphabetical order and includes all the names by which a manor may have

1. *Rotuli Litterarum Clausarum in Turri Londinensi Asservati, 1204–27*, ed. T. D. Hardy, Vol.1 (Record Commission, 1833), 591. I owe this reference to Professor R. H. Britnell.
2. *The Victoria County History of Yorkshire: East Riding*, Vol. II, ed. K. J. Allison (1974), p. 285.
3. Public Record Office, C54/30, m. 9.
4. *V.C.H. East Riding*, Vol. II. p. 288.
5. *Ibid.*
6. D. M. Palliser, 'Markets and towns in the middle ages', in *An Historical Atlas of the East Riding of Yorkshire*, eds S. Neave and S. Ellis (1996), pp. 74–75, 146. Forty-one places had a market and fair, two (Hunmanby and Nafferton) a market but no known fair, and one (Hornsea) a fair but no known market.

been known (variants and aliases appearing in lower case and manor names which have been allocated as standard appearing in upper case). Once a manor name has been selected, a further screen provides information about that manor, such as the parish in which it is centred, the number of records, the name of the honour it was part of, if any, and cross-references to other manors.

Individual documents, and runs of documents where there are no substantial gaps in the date sequence, are displayed in chronological order. Descriptions include an indication of the quantity and physical format of the records, the location, repository reference number and references to published editions of documents, transcriptions, translations and modern copies.

All the records for a manor can be retrieved, but searches can also be confined to:
records of a particular type, for example court roll or account;
records deposited in a particular record repository;
a date or range of dates.

Any combination of these search options can be made, or none at all.

A 'County search' allows wider searches to be made across each riding. For example, all the 9,000 records for manors in the West Riding can be displayed, but such a search can also be defined by dates, record repository or keyword as described above; for example, thirteenth-century accounts for manors in the West Riding can be retrieved. An 'Honour search' lists the honours in a county, identifies the manors included in an honour and displays the records for these manors. A 'Parish search' lists the parishes in a county which are linked to a manor in the MDR, identifies the manors to which a parish is linked and displays the records for these manors. The parish used is generally the ancient ecclesiastical parish in which the majority of the manor lay. Each manor is linked to one parish only and no attempt has been made to identify all the parishes which may have been covered by a manor. The manors selected by these wider searches are displayed alphabetically; the records for each are displayed chronologically.

The MDR is accessed via the HMC's website (http://www.hmc.gov.uk). Print-outs and copies of the database are also available at the Borthwick Institute, North Yorkshire County Record Office, East Riding of Yorkshire Archive Service, Sheffield Archives, the Yorkshire Archaeological Society and other branches of the West Yorkshire Archive Service. A general information leaflet about the MDR is available from the Historical Manuscripts Commission, Quality House, Quality Court, Chancery Lane, London WC2A 1HP, to whom enquiries concerning records for manors in other counties should be addressed. The latest in the series of Borthwick Wallets provides examples of sixteenth to eighteenth century Yorkshire manorial documents together with transcriptions and notes demonstrating the sort of information which can be extracted from them. Borthwick Wallet 8 is available from the Secretary, Borthwick Institute, St Anthony's Hall, York YO1 7PW.

OBITUARY

JOHN TELFORD 1926–1998

Members of the Yorkshire Archaeological Society were saddened by the news last October of John Telford's sudden death, whilst on holiday in the United States.

John was born in Workington, Cumberland in 1926. His father, who was a railwayman, moved to Yorkshire when he was ten years old. John became a railwayman too, though this was interrupted in 1943, when at 17 he volunteered to join the Navy. In due course he was assigned to convoy duty and was on the last convoy of the war to Russia. He was then sent to the Far East, war with Japan at this point still continuing. With the coming of peace, John returned to Yorkshire, but he maintained a lifelong interest in naval matters, especially sailing ships and the Navy in Nelson's time.

John Telford's working life was spent, like his father, as a railwayman. He became a traffic controller in Leeds, retiring in 1982. By then he had already developed a strong interest in archaeology and had been on a number of digs. He was also a member of the Yorkshire Archaeological Society, having joined some years before when David Michelmore was Librarian.

After retirement, he began coming to 'Claremont' more frequently, particularly attending meetings of the Roman Antiquities Section. He became concerned too about the Society's slide collection, which he began to catalogue by person, place or subject in 1984, very little work having previously been done. The work was often slow, as many of the slides had no identification labels, but John took great pride in eventually placing most of them. From then on his interest in the YAS's photographic collection as a whole deepened and his time spent at 'Claremont' increased correspondingly, until he was averaging three days a week. For more than a decade, John sorted and indexed this material, recorded new donations, and reported on the progress being made to Council or in the 'Library and Archives Newsletter'. At the time of his death, he was working on the largest collection so far received by the Society. It was formed by the late Pauline Routh, a Family History Section member who specialised in the study of alabaster monumental effigies. John's own interests in monumental brasses and in heraldry were especially helpful in enabling him to begin to record this huge collection. Three years on from its arrival in 1995, John had made major inroads into this work. His love of what he was doing was always evident and his curiosity about the photographs he was assessing was infectious. His achievement in respect of this aspect of the YAS's activities was outstanding and users of the photographic collection in years to come will have cause to be grateful for his dedication.

John also made an important contribution to the development of the West Yorkshire Archive Service's computer database of accessions, originating and checking many thousands of entries on a laptop computer specially assigned to him for this purpose. His enquiring spirit and his eye for detail equipped him well for this demanding task: compiling entries about the various groups of archives held by the Service, and indexing them to allow computer-based retrieval. The Lottery-Funded 'Archive Listings Access Project' will incorporate the entries which John made, and provide public access to them on a permanent basis.

Outside 'Claremont', John's archaeological interests continued. Each year, with his wife Brenda, he attended digs on pre-historic sites in Wales and Roman sites in Northamptonshire. These were greatly looked forward to. He was also a member of the Yorkshire Heraldry Society, and a leading member of the Aireborough and Horsforth Museum Society, being President twice. There too, he looked after the photographic collection, and gave talks about old photographs.

A member of Council and a dedicated Library helper, John's contribution to the Society he loved cannot be exaggerated. He is greatly missed.

Claremont, Leeds *Robert Frost*

BOOK REVIEWS

A GUIDE TO THE ROWNTREE AND MACKINTOSH COMPANY ARCHIVES 1862–1969. By JUDITH BURG. 24.5 × 17 cm. Pp. xiv and 240. Borthwick Texts and Calendars 22. Price: £11.50 (plus £1.25 p. & p. from The Borthwick Institute, York YO1 2PW.)

This latest addition to the long running series, Borthwick Texts and Calendars, provides an excellent introduction to the archives of the well-known Company, Rowntree Mackintosh, mainly deposited at the Borthwick Institute by Nestle in 1992. However, as little was sent following the merger of Rowntree & Co. and John Mackintosh & Sons in 1969, the Guide does not include very recent material. The archives of John Mackintosh Ltd and John Mackintosh & Sons Ltd are also much less complete than those of Rowntree & Co. Nevertheless the useful introduction contains a good deal of information about both Companies, their respective histories, and how they were structured and organised. Following on from this, the main body of the Guide comprises details of the records, which survive, using a clear, concise and easy to follow classification. The lay-out is attractive with headings high-lighted. There is also a comprehensive index, which enables the user to get the best from the information provided. Because this is such a pleasantly produced book, the lack of any illustrative material, perhaps from the fascinating ephemera section, does seem more of an omission than it otherwise would. This apart, all in all this is a well designed, sensibly produced example of its kind, which will be of great interest and assistance to those who wish to use these records in the future.

Claremont, Leeds *Robert Frost*

THE DIARY OF ROBERT SHARP OF SOUTH CAVE: LIFE IN A YORKSHIRE VILLAGE 1812–1837 Edited by JANICE E. CROWTHER and PETER A. CROWTHER. Pp. 667. Pls. 8. Maps 5. The British Academy Records of Social and Economic History, New Series 26, Oxford University Press for the British Academy, 1997. ISBN 0 19 7261736. Price: £35.

This is a most welcome publication for there are few diaries that can compare, both as a good read and an invaluable historical source, with this detailed daily journal kept by a Yorkshire village schoolmaster in the 1820s-30s. Robert Sharp the diarist was born at Barmston on the East Yorkshire coast in 1773, the son of a shepherd. Moving to Bridlington he became a shoemaker but, as with many of his trade, continued his self-education and eventually in 1804 was appointed schoolmaster at South Cave, a market village twelve miles west of Hull, a post he retained until his death in 1843.

The surviving diary covers the period 19 May 1826 to 5 June 1837, and is complete except for the whole of 1828 and two and a half months at the end of 1835. The original diary, which was despatched in instalments to Sharp's son William, who worked for the London publishers Longman's, is now in the care of the East Riding of Yorkshire Council Archives Service.

Sharp, in addition to running the boys' school, was also a tax collector, deputy constable, clerk of the friendly society, land surveyor, sometime shopkeeper and general village scribe. The school is barely mentioned in the diary, nor the pupils, but Sharp was well placed to chronicle, often critically, the lives of his fellow villagers and record local and national events. He was an avid reader of newspapers and journals. Nonconformist in religion and a moderate radical in politics Sharp, a disciple of Cobbett, had little time for the views and actions of the local farmers, land-owners and Anglican clergy.

Commenting on the impact of enclosure on a nearby parish in 1826 he wrote. 'The last time I was at Ferriby I saw what may be called the first fruits of an Inclosure, *viz.* A Board put up with notice that any person trespassing on the land would be prosecuted. No walking in the field now

without danger of the tread mill, nothing now but dust to gratify the weary traveller'. He was not sympathetic to the New Poor Law and the effectiveness of local Guardians who had 'to obey the commands of their Superiors the high & mighty Commissioners'. But he was equally critical of the old culture decrying the 'sets of Plough Boys going about with their trumpery Music and Rattly Drums — there wants a reform here'.

The extent of the diary, containing some 260,000 words, has defeated previous transcribers and potential publishers. Jan and Peter Crowther are to be congratulated on their perseverance in producing this superb edition of the diary which the British Academy has published in its entirety. Along with a series of letters written to Sharp's son William in the years 1812–25. The text is accompanied by excellent footnotes, most useful appendices and an admirably comprehensive index.

University of Hull *David Neave*

YORKSHIRE HUNDRED AND QUO WARRANTO ROLLS, 1274–1294. Edited and translated by B. ENGLISH. 22 × 14 cm. Pp. 342. Pl. 1. End-paper maps. Yorkshire Archaeological Society, Record Series, cli, Leeds, 1996. ISBN 0 902122 75 4. Price: £27 YAS members; £30 non-members.

The reign of Edward I witnessed a series of major royal inquisitions, remarkable alike for their ambitious scope and for the abundance of surviving records. The wealth of information which these preserve, touching in detail on land-holding, social life and government in the shires renders them a first-rate source for the local historian. Consulting them, however, has hitherto usually meant getting to grips with the heavily abbreviated Latin of the Record Commission editions, published early in the last century. Professor English's attractive volume of translated documents from Yorkshire therefore represents a substantial and welcome step towards making the fruits of the Edwardian inquests more widely and conveniently accessible. The volume prints the results of the two inquisitions from which Yorkshire material survives: the wide-ranging 'ragman' inquest of 1274–75; and the *Quo warranto* investigations into rights and liberties, conducted for Yorkshire in sessions of 1279–81 and 1293–94. Each of these complements and illuminates the other, although it is the 'ragman' returns that have the greater range of information. Records from the 1274–75 inquiry are admittedly less substantial than for some counties, since there survive from Yorkshire no original returns but only an 'extract' roll, with edited summaries of hundredal testimony, produced subsequently for uncertain official purposes. Its compilers unfortunately omitted many details valuable to the local historian, such as the names of hundred jurors and the identities of many of those caught up in local wrongdoings. Nonetheless, the Yorkshire extract contains a wealth of information relating to land-holding and fiefs, liberties, the misdeeds of royal and seignorial officials, and infringements of the king's rights in the county. Much is revealed concerning the working of local government, and this matches fully the picture of rampant bribe-taking, extortion and (occasionally ingenious) racketeering familiar from elsewhere. But there is also considerable material illuminating social life and economic activity, with information on boroughs and vills, and on the wool trade. The *Quo warranto* returns likewise show considerable variety in detail, including, for example, much evidence relating to fairs and markets, as well as to other liberties and tenure.

The new edition marks in certain respects an advance on the Record Commission volumes: opportunity has been taken to check, and where necessary to amend, the transcription; and the 1293–94 *Quo warranto* returns here follow a better manuscript than the one adopted for the earlier edition. Editing and translation maintain a high standard, and generally achieve a sensible reconciliation of the demands of fidelity and readability. Professor English provides a clear and concise introduction, illuminating the character and context of the records. The volume is further enhanced by a thorough index of persons and places, a glossary, a map, and small photographs of samples from the manuscripts.

University of Durham *Len Scales*

EXCAVATIONS IN HULL, 1975–76. By D. H. EVANS. 29.5 × 21 em. Pp. 216. Figs 130. Tables 100. Pls 18. Microfiches 3. Hull Old Town Report 2, Beverley 1994. Price: £18. ISSN 0012 852X.

The exeavations reported in this volume were earried out as a response to the elearance of a large swathe of land through the southern part of the Old Town for the eonstruetion of a southern orbital road. The volume eovers five main sites, some of whieh are themselves amalgamations of more than one site. In addition, pottery from several more sites, whieh has not been previously published, is ineluded. The volume is therefore an important eontribution to the arehaeology of a town that grew during the late Middle Ages into one of the major ports of the East Coast.

A variety of site type is represented, urban domestie and industrial, eivic buildings (the Gaol) and the formal gardens of the Augustinian Friary. The short three page introduetion gives, I feel, only a glimpse of what must have been a Hereulean task in preparing this volume for publieation. Those involved in urban exeavations during the seventies will remember the ehallenges faeed at large, complex and heavily disturbed sites being exeavated with inadequate resourees. Rescuing the information was the primary eoneern and publication was a distant seeond for the future. That future has now arrived and the volume inevitably reflects the eireumstanees of exeavation and preparation. Passing snippets hint at the diffieulties faeed. I partieularly sympathised with those faeed with a Gas Board determined to lay a gas main aeross a site. One hopes that could not happen today!

Many different authors have eontributed their reports and this is inevitably reflected in differenees of treatment and organisation. The volume eomprises three main seetions: the exeavation reports, the finds reports and the environmental reports. There are also fiehes whieh eontain the majority of the tables for the finds summaries. There is a eolossal amount of information recorded in these sections. In spite of difficulties imposed by later destruetion, many details of medieval buildings and eonstruetion were recovered and developments in methods and materials are hinted at. The sites produeed impressive assemblages of finds, partieularly pottery, and this leads me to one of my main quibbles with the volume. The finds are all loeated in a quite different seetion of the book from the site deseriptions. Although there is eonsistent eross-refereneing, it is hard work going baek and forth to find out how rieh or poor the assemblage from one partieular phase was. Even a general impression is most helpful in gaining a eorreet estimate of the signifieanee of a partieular phase or strueture. I think that this is partieularly important for the medieval period where quite non-deseript and insubstantial remains may be all that is left of impressive and high status buildings. Of eourse, there is no easy or 'eorreet' arrangement and what is convenient for one researeher may well be most awkward for another.

The other feature that I would have mueh appreciated, partieularly as a stranger to Hull, is an overview seetion drawing together various themes and signifieanees of the diseoverics. The development of eonstruetion teehniques has been referred to above. Another theme is the nature and intensity of development. At Chester, it is notable that expansion and prosperity appears to extend well into the fourteenth eentury (a period whieh ineludes Edward I's conquest of Wales) to be followed by stagnation. Only from the end of the fifteenth eentury is expansion resumed, but then gathers momentum with propertics becoming inereasingly subdivided. One ean perhaps also identify the start of a downgrading of the old historic eore with higher status oeeupation moving to the land of dissolved religious houses and the new suburbs. Such a proeess beeame extreme by the eighteenth and nineteenth centuries. I wonder how far Kingston with its late start and royal patronage follows this trend. Another theme specifie to Kingston upon Hull which the reports allude to but do not draw together, is the dumping of elay and other material to eounteraet rising water levels and flooding.

Not withstanding the above, this volume is a major aehievement. It represents the completion of the publication of virtually all the exeavations earried out in Hull during the 1970s. Would that other towns eould elaim as mueh! The volume is a worthy product of the dedieation and persistence of a great many people. It ean perhaps also be seen, with a nostalgie tint, as a reminder of a golden age, an era and a spirit of archaeology that has passed away under PPG 16 and contraeting arehaeology.

Grosvenor Museum, Chester *Simon Ward*

A HISTORY OF TODMORDEN. By Malcolm and Freda Heywood and Bernard Jennings. 25 × 17.5 cm. Pp. viii and 258. Pls 136 (30 in colour). Otley: Smith Settle, 1996. Price: £12.95.

The book takes the form of a collection of essays grouped into 13 chapters which takes the reader through the human occupation of the Todmorden area from *c.* 2500 BC to the present. Its main theme is the development of the dual economy and the qualities of the environment and its inhabitants which led to the introduction of cotton and industrial growth. Sources are clearly explained and analysed, and the use of wills and inventories to describe the life and economy of the yeoman farmer in chapter four is excellent. The amount of information available to historians of the nineteenth and twentieth centuries naturally results in a far more detailed study which takes over half the text.

The writing is clear, the quotes and useful headings making it a 'good read' for all those with an interest in history. It is also possible to dip into the list of contents and follow individual topics through the text: for example farming, from chapter 2 ('Farming Systems') through chapter 4 ('Farming') to chapter 10 ('Changes in Patterns of Agriculture').

The book is of value not only to those born and raised locally. The careful insertion of wider social and political history to help the reader understand the context of local history is masterly. While 'Todmordonians' will find the contents fascinating, the background information on topics such as textile history and nineteenth-century social unrest is an education for all. For those not very familiar with the area, the maps are confusing and a standard format, with the position of the present town shown, would have helped.

The fine illustrations greatly enhance the appearance of the book, but sadly they are not integrated into the text. For example: the old photograph of Stansfield View Workhouse on p. 142 has no link with the relevant text on the previous page, and can only be found via the references for Todmorden Board of Guardians in the index. Lawrence Greenwood's five lovely watercolours and reconstruction drawings are bright and confident (although the use of so many (26) reconstructions left the reviewer longing for some information on the sources used). The clarity of the line drawings contrasts with the variable quality of the colour photographs (pp. 44, 45).

The quality of the index affects all aspects of the use of a book, and the reviewer would like to see professional indexers used whenever possible, and their work acknowledged. The inclusion of a broad subject heading such as 'Todmorden' (see above) and 'religious life' which the reviewer found after a search for 'Society of Friends/Quakers' can conceal rather than reveal the information sought.

Altogether this is a valuable addition to the important series of books about Calderdale, produced by members of Professor Jennings's local history group.

Carleton, Skipton *Sue Wrathmell*

'THE READINESS OF THE PEOPLE': THE FORMATION AND EMERGENCE OF THE ARMY OF THE FAIRFAXES, 1642–3. By A. J. Hopper. Pp. 27. University of York. Borthwick Paper No. 92. Price: £3 (plus 35p p. & p). ISBN 0524 0913.

The author gives us an insight into the relations between the various strata of society at the beginning of the Civil War and explores the nature of parliamentarian support in Yorkshire. Our county was both the scene of the first open defiance of the King (when he was denied entry into Hull ...) and also where Charles began raising his army. The monarch failed to win solid support among the already divided population, and many of the gentry and nobles still hoped the dispute would not escalate into war. Indeed, Ferdinando, Lord Fairfax, even after the beginning of his own recruiting campaign, negotiated a treaty of neutrality with the leading Royalists of Rothwell though this did not have the approval of parliament and was soon dissolved through the active opposition of the Hothams of Hull.

Recruiting began in earnest in October 1642 and news of atrocities committed by the Catholic forces during the Irish rebellion, widely reported in contemporary pamphlets, did much to encourage anti-royalist feeling among the 'commons'. Radicalism was encouraged by individuals such as Peace Thomas Stockdale, friend and agent of Lord Fairfax; the reply to the Royalist attack on

Bradford was in the nature of a popular uprising after most of the gentry and wealthier elements of society had fled. These 'insurgents' were eagerly recruited into Fairfax's army in contrast to other parts of the country where active groups of artisans and yeomen were regarded with deep suspicion, not to say fear. The Moorlanders, the Pennine folk of Stafford, and the men of Lewes in Sussex were left floundering when the gentry refused to support them, while the popular uprising which followed Prince Rupert's sack of Cirencester was also left to die away without aid from the upper echelons of society.

The first great test of Fairfax's army came in June 1643 when the Duke of Newcastle led his army into the West Riding to strike at the heart of popular parliamentarian resistance. Fairfax's army was poorly supplied with horse and the potentially massive fire power of his enthusiastic infantry was probably weakened by a shortage of powder and shot, too much having been shipped south out of the Hull arsenal by Lord Hotham. The result was defeat at Adwalton Moor and the temporary dispersal of Fairfax's staunch company of clothiers, blacksmiths, weavers, grocers, cordwainers and the like. However, they readily signed up again as the Parliamentarians regrouped. Even after the war and following the Restoration West Yorkshire, especially Leeds and Bradford, was a stronghold of radicalism. There were numerous individual acts of sedition and these two towns were the centre of the Northern Uprisings of 1663.

Based on extensive research the 20 pages of main text are supported by 163 end notes. The reviewer would like to see this material presented on a larger canvas with much more of the detail than the present essay allows.

Hull Museums *Arthur G. Credland*

ON ILKLA MOOAR BAHT 'AT. THE STORY OF THE SONG. By ARNOLD KELLETT. Pp. viii and 138. Illus. 32. Smith Settle, Otley, 1998. Price: £7.95.

This lively investigation of the origins of 'The Yorkshire Anthem' covers other related topics, including the history of Ilkley and of Methodism, the topography of the Moor, Yorkshire dialect and the murder of Mary Jane. One certain fact about the song is that the tune was written by Thomas Clark (d. 1859), a Methodist boot and shoe seller and choirmaster from Canterbury. It was called 'Cranbrook' after a Kentish village and published in 1805. The words were first published in 1916 but seem to have been composed as early as 1860, perhaps by members of a Halifax chapel choir on an outing to Ilkley Moor. The form was a dialogue between a man and his mother but there are several variants and as many as twelve alternative locations from Luddenden Foot to Oldham Edge. Fictitious origins for the composition, including one based on the discovery of a woman's skeleton, are discussed and the style is related to the dialect poems of John Horsley. There is a paraphrase in the style of Longfellow and a setting of 1946 by Eric Fenby as an overture in the style of Rossini. A good bibliography gives further reading for those whose appetite has been whetted by Dr Kellett's enthusiasm.

York *R. M. Butler*

THE FRANCISCANS IN THE MEDIEVAL CUSTODY OF YORK. By MICHAEL ROBSON. 21 × 14.5 cm. Pp. 40. Borthwick Paper No. 93. York: Borthwick Institute, 1997. Price: £3 (plus 35p p. & p).

The Franciscan custody of York comprised four Yorkshire houses (York, Beverley, Doncaster, Scarborough) and three in Lincolnshire (Boston, Grimsby, Lincoln). Their origins are briefly discussed and the activity of the custodial officials in administering the seven houses is indicated with special attention paid to libraries and educational tasks. The section on liturgical practices highlights the friars' participation in funeral processions and the collecting of alms, but it also focuses on their preaching, both in the city where their friary stood but also in itinerant campaigns. These high profile activities enhanced their presence within each town but also attracted kings to attend services in their churches and bestow gifts on the friaries. A final chapter explores their

relationship with the local towns and cities, and notes the occupations of those inhabitants who remembered the mendicant friars in their wills.

The entire booklet is carefully supported by footnotes; sometimes the same incident is used in two or more different contexts. Occasionally, as in the dispute between John Pudsay and Henry Lescrop in 1415 over the latter's abducted wife, there is insufficient background to a particular episode. Generally the author displays both a detailed knowledge of the political history of northern England and of the wider European setting of the Franciscan order. This study provides a useful commentary on local urban history.

Leeds *Lawrence Butler*

THE FAWKES FAMILY AND THEIR ESTATES IN WHARFEDALE, 1819–1936 By MARIAN SHARPLES. 21 × 13.5 cm. Pp. xiv and 210. Pls. 6. Tables 17. Maps 8. Publications of the Thoresby Society, second series, vol. 6 for 1995. Leeds, 1997. Price: £15.

Marian Sharples introduces the Fawkes family of Farnley Hall as 'a distinguished and influential Yorkshire landowning family', their estate comprising 'one of the major landholdings in England'. Her account of its fortunes from 1819 to 1936 reveals further family attributes: considerable business acumen and dedication, generosity both to family and tenants, and public service in political, social and agricultural spheres.

The year 1819 saw the formation by Walter Fawkes of the Fawkes Trust Estate, to be superseded by the Farnley Hall Trust in 1900. Under the 1819 settlement the estate was leased to trustees who in turn leased it back to Walter Fawkes as tenant-for-life, the succession being limited to named tenants-for-life. 'Portions' for the younger children and 'jointures' for widows were arranged, but more importantly a limit was put on the degree to which the estate could be mortgaged, and tenants-for-life were forbidden from selling land without the consent of Chancery or through the estates' trustees.

These restrictions, protecting the estate from 'unwise or profligate' heirs, served the family well. Unlike the neighbouring Ibbetsons of Denton Hall the Fawkes remained untroubled by family irresponsibility, the six subsequent tenants-for-life, with able professional help, running the estate with foresight and initiative. The Fawkes' major contribution to agriculture was probably the development of its herd of shorthorn cattle, dual-purpose animals, producing good milkers as well as early maturing beasts. Its young bulls were exported to Europe and beyond and by the early twentieth century the breed dominated British cattle-breeding. The family's commitment to improved methods of agriculture was also expressed in its close involvement in the establishment of the Wharfedale Agricultural Society in 1805/6, the Yorkshire Agricultural Society in 1837, (Hawksworth Fawkes was an early judge of turnip cultivation) and in Ayscough Fawkes' membership of the Joint Council for Agricultural Education in Yorkshire, later the advisory committee on agriculture to The Yorkshire College, of which he was a life governor.

Hawksworth Fawkes, tenant-for-life from 1825 to 1871, fully exploited contemporary government legislation, buying the freehold of the copyhold part of his estate, and borrowing under the Drainage Act of 1840. The 1840s also saw land sold to the North Eastern Railway and in the 1860s land was compulsorily purchased by Leeds Corporation (at the generous price of £310 per acre) for the Washburn valley complex of reservoirs. Hawksworth's successor, Ayscough, made further sales, the most notable being property at Menston sold to the West Riding Asylum Board. This contraction in the estate was largely offset by the purchase of land nearer Farnley to consolidate the 'heartlands'.

Ayscough Fawkes met the late nineteenth century 'Great Depression' by investing substantially in his livestock and opening two dairies, intended to be run as cooperatives with his tenants, at Farnley Hall itself and at Harrogate, so cutting out the middleman. The depression was less severe in areas near expanding towns, such as Farnley, where demand for dairy products and beef, and for secondary products such as leather, paper and tallow, continued to grow. But the lean years took their toll. In 1890 Ayscough Fawkes had a major sale of paintings to consolidate his dairying

enterprise and in 1899, the year he died, he not only sold the dairy business but also the entire herd of shorthorns along with his racing stud.

His successor, Frederick Fawkes, described as 'an exceptional landowner', quickly reestablished a shorthorn herd and invested steadily in working and fixed capital. Taking advantage of his financial ability to exploit the new machinery, fertilisers and cheap imports of grain he took in hand much marginal land, although this initiative was not universally successful, the agent venturing that 'farming solely by hired labour is not a success, as the men have not a real interest in their work'. Overall he was unable to prevent further erosion of the estate, between 1900 and 1927 the acreage being reduced to half, although Farnley Park itself was little altered.

In addition to overseeing his estate, Frederick Fawkes served his locality and county as Member of Parliament for Pudsey and Otley (1922/23) and as High Sheriff for Yorkshire (1932). Nearer home in 1926 he gave Wharfedale Meadows to the people of Otley and was generous in periodically making the surviving core of the Farnley Hall Turner paintings available to the public. He died, ('probably as he would have chosen' comments Marian Sharples) hunting with the Bramham Moor over his own land.

The account is based on an M.Phil. thesis awarded by the University of Leeds in 1993. Unfortunately ill health prevented Marian Sharples from preparing the text for publication, a task which was undertaken by her academic supervisors and the Thoresby Society's Honorary Editors. There is a useful index, and the extensive bibliography and source references will be welcomed by those working in similar fields. The author's obvious affinity with the Wharfedale countryside results in a warmly written account, which it is sad that she did not live to see in print.

Pudsey *Ruth Strong*

LADY ANNE CLIFFORD By R. T. SPENCE. 24 × 16 cm. Pp. xvi and 300. Pls. 98. Tables 14. Maps 3. Sutton Publishing, Stroud, 1997. ISBN 0 7509 1311 8. Price: £20.

Dick Spence has been working on the Clifford family for more than 40 years. His fourth book on them treats of arguably the most famous Clifford, Lady Anne. This scholarly, detailed but lucidly argued, work uses a wide range of evidence including contemporary printed books, buildings, and memorials; some of the manuscripts and paintings are in private collections. It is neatly produced, though buyers might regret that the only colour illustrations are on the dust jacket. But some recent pieces featuring Lady Anne do not appear in the bibliography. Given that modern concern with Anne Clifford goes back to *c.* 1920, and that she is of interest to Women's History, readers less familiar with her and the Cliffords might have welcomed an introduction to past work and new perspectives.

What Dr Spence does, with aplomb, is to take us chronologically through Anne's life. Her formative years came under her mother's, rather than her father's, influence, and the well educated youngster attended the courts of Elizabeth I and James I. It was her mother who taught Anne to fight for her lands, for, without a surviving male child, her father had left her a £15,000 portion, but the Clifford lands to his brother, subject to Anne's mother's jointure estate. Dr Spence ironically concludes that Lady Anne was fortunate not to have immediately inherited her father's debt-ridden estates. Not until the death of her father's nephew in 1643 did the lands pass to Anne's second husband in her right, and return to her at her widowhood in 1650. Lady Anne's stubborn refusal to agree in 1617 to King James' adjudication of her father's settlement meant years of uncertainty for her family and their tenants in Westmorland and Yorkshire. Dr Spence successfully interweaves the great inheritance dispute with chapters on Anne as Countess, then dowager of Dorset, and as a mother, and as Countess of Pembroke after her second marriage to that earl in 1630. Both marriages had their ups and downs, and the happier one, with Dorset, suffered from the inheritance dispute. Briefly a courtier again, Anne separated from Pembroke in 1634, though he continued to give her legal support. Her two jointure estates, in the south, became tributes to the expensive impact of the long-lived widow on landed families.

Then follow her struggles with her Skipton and Westmorland tenants to overthrow, as a wealthy, determined, and hard hitting litigant, as many vestiges of the 1617 award as she could. In Yorkshire

she unsuccessfully attempted to resurrect outmoded administrative divisions, which she could control, and upset the county governing elite. There is no space to place Anne effectively in the county context in either Yorkshire or Westmorland, where she was hereditary sheriff. Nor space to throw light on her, mostly male, officers. Overawed by her status, they were rewarded with favourable estate leases. Some helped with keeping Anne's 'diaries', and to write out the Great Books of Record of the inheritance dispute, which contain the evidence for Anne's lawsuits. Noted antiquaries, including Roger Dodsworth, did much research and Anne's mother herself had found vital material in the Tower. Another surviving record of the dispute is the Appleby triptych, shown to be a piece of pictorial family propaganda. Dr Spence is right to conclude (p. 253) that Anne's economic impact in the north needs assessment. But alongside her spending in the dales, and not only as a rebuilder of Clifford castles, her investments in the London money market, and her lawsuits, must have drained money from the north and damaged her tenants, despite her, and Dr Spence's, claims to the contrary.

University of Manchester *B. Phillips*

ANCIENT LANDSCAPES OF THE YORKSHIRE WOLDS — AN AERIAL PHOTOGRAPHIC TRANSCRIPTION AND ANALYSIS. By CATHERINE STOERTZ. Pp. 94. Maps 4 (in bicolour). R.C.H.M. England, 1997. ISBN 1 873592 31 0.

Studies of landscapes, both ancient and modern, are the present vogue having in turn replaced environmental and settlement studies in publishers' lists. The Royal Commission for Historical Monuments in England published the last of their well established county monographs — that on N. Northamptonshire — in 1985, since then only thematic publications have been produced. This newly published work is not a multi-period analysis, though there is an eight page 'Survey Setting' introducing the area to any unfamiliar with it. It presents a detailed transcription of 35,000 air photographs onto 'maps ... which are intended to serve as a visual index to ... cropmarks and soilmarks, the outline of human activity through several millennia'. This survey must be considered as a RCHME's Inventory, and as such is the major archaeological resource for the Wolds planning and amenity authorities. It is solely a research tool, but to ignore all shadow sites seriously devalues the exercise. We see those interrupted ditches of the suggested henge, photographed like hundreds of other sites by Derrick Riley, centred on Duggleby Howe but not the neolithic round barrow— though it can be made out on the faint grey inked O.S. base map. The same is true for Wharram Percy, a few ditches but no earthworks, and larger still, the Huggate Dikes are mapped in red for less than 500 m while to both east and west the free standing banks and therefore the ditches between them of Horsdale and Frendaldale continue as barely visible grey outlines for eight times that distance.

The four folded reference maps are standard 1 : 25,000 uncontoured Ordnance Survey outlines printed in a faint grey with the archaeological detail shown in red. The size and quality of the paper is similar to the far more colourful tourist editions of other parts of the country. The maps are housed in a card sleeve. The smaller text maps are black on the grey outline with four densities of regular dot stipple showing altitude. The chosen font lacks weight and, though the amazing reduction of detail omits nothing, it is not easily interpreted without magnification.

The text analysis of the digitally transcribed photographs 'orders' the monuments by four main shapes: pit, linear, curvilinear, rectilinear. Commission officers have developed their computer software over the last decade with the York based workers subsequently surveying the Yorkshire Dales National Park and now Lincolnshire. When archaeological detail especially chronology or function is used to flesh out the site morphology then that body and this text becomes much more interesting. Whether every circular or rectilinear feature of the same size then has the same function remains debatable, but that is work we must undertake in the future. Similarly their 'linear enclosure complexes' usually flank late Roman period roads or tracks though one ladderform example from Kilham parish (Fig. 26, 4) is apparently devoid of any routeway at all. Minutia of this nature point the way forward, further challenging amateur and professional archaeologists interested in eastern Yorkshire. Significantly numerous curvilinear enclosures containing pits have

been drawn together possibly for the first time; measuring up to 6 m by 4 m some have been described as *Grubenhäuser*. If this is the case then our understanding of the post-Roman wold scene may be the first to change appreciably.

This corpus is already a most valuable reference for 'this unusual part of England' as Lord Faringdon puts it in his foreword, but why, with completely digitised information, is there no interactive compact disc when the opportunity of studying data at a legible scale of one's choice would have been available. The volume concludes decades of research, a great deal of which was undertaken by the late Herman Ramm. One wonders why Her Majesty's Commissioners debated or delayed the publication and printing for so long?

Settle *Alan King*

DOCUMENTING THE CULTURAL HERITAGE. Edited by ROBIN THORNES and JOHN BOLD. 24 × 18 cm. Pp. x and 58. ISBN 0 89236 543 9. Price: not stated.

At a time when the heritage is under increasing threat of destruction or of return to its country of origin, the development of an internationally agreed standard of documentation is highly desirable. This handbook explains the genesis of three main standards: the Core Data Index to Historic Buildings and Monuments of the Architectural Heritage, the Standard for Archaeological Sites and Monuments, and the Object ID. Examples are given of records prepared to these standards.

WETLAND HERITAGE OF HOLDERNESS: AN ARCHAEOLOGICAL SURVEY. Edited by R. VAN DER NOORT AND S. ELLIS. 29.5 × 21 cm. Pp. viii and 388. Figs. 129. School of Geography and Earth Resources, Hull University, Hull, 1995. Price: £15 (plus £2.50 p. & p).

Wetland Heritage of Holderness is the first report of the Humber Wetlands Survey, the last of the four wetlands projects. The primary aim of the project is to formulate a strategy to manage the archaeological and palaeoenvironmental resources, in view of the numerous threats to those resources. The coastal erosion of up to 4 km of Holderness since Roman times illustrates the scale of these threats.

The report is split into four sections and reflects the archaeological and palaeoenvironmental aspects of the project. Part one provides a general introduction, including the physical background and investigation into land use of the region.

The second section details the palaeoenvironmental study. This succeeds in both unifying previous work as well as providing an assessment of the potential of numerous sites in Holderness. Separate papers deal with the palynological analysis of the Keyingham valley, and investigations into the effects that colluviation may have on the survival and discovery of archaeological sites.

Part three presents the results of the archaeological survey and consists largely of the gazetteer. This combines find spots, find concentrations and sites from previous research and the current survey. The presentation of this information in a unified form is to be applauded, but the exclusion of the majority of deserted medieval villages and moated sites is puzzling, although the wetland potential of such sites is well considered in a separate paper. As with most of the wetland surveys the archaeology is dominated by lithic material, with over fifteen times the amount of previously known flint work being discovered. This provides the research material that was lacking from an area which had seen no previously concerted survey work. An analysis of this lithic material and a reassessment of the West Furze site are also considered in this section.

The final section provides an overview, considering the preservation of archaeological sites and recommendations for the management of the wetland heritage. The report identifies landscapes and sites of national and regional importance, including two nationally important sites where wetland integrity can no longer be guaranteed. These, it suggests, should be the focus of further research. On a practical level, the absence of an index can make navigation around the text difficult.

Wetland Heritage of Holderness is far more than a management document. The survey has synthesised previous research as well as addressing those areas where gaps in research were identified. In doing so it has also discovered some remarkable sites, notably a Bronze Age managed

alder woodland (Seaton-3). The report is the product of a team effort which is clearly evident in its thorough and well-rounded understanding of wetland issues.

North West Wetlands Survey, Lancaster *Richard Short*

MONASTERIES AND LANDSCAPE IN NORTH EAST ENGLAND. By BRYAN WAITES. 21 × 15 cm. Pp. x and 214. Pls. 14. Maps 34. Oakham: Multum in Parvo Press, 1997. ISBN 0 9524544 3 2. Price: £15.95 (plus £1.50 p. & p. from 6 Chater Road, Oakham, Rutland LE15 6RY.)

The cover illustration of Byland in colour with dark clouds chasing over the hills and the subtitle 'The medieval colonisation of the North York Moors' give a better idea of this book's contents than its all-embracing first title. The main theme is colonisation, either by domestic settlement, usually in villages, or by monastic exploitation, normally from granges. The secondary theme is the changing appearance of the landscape brought about by woodland clearance or by agrarian improvement. The intrusion of industry, albeit modestly in three aspects (ironworking, saltpanning and tanning), is another compact theme. The wool trade and the development of coastal ports completes the range of studies, all of which are well illustrated by maps and monotone photographs. The interplay of change to both the physical and the economic landscape is the cohering factor within this book.

However it is particularly important also to recognise the position of this study within our understanding of the medieval landscape. Waites has pulled together a number of articles, the latest written over 15 years ago, and combined them in a unified narrative, which stands within a tradition of historical geography linked to the teaching of Hoskins and Darby. The author regrets that so few others have followed him into north-east Yorkshire. However, academic approaches have changed with scholars either looking at the totality of landscape (as in Faull and Moorhouse, *West Yorkshire: an archaeological survey to* AD 1500) or concentrating on the contribution of a single Order (as in Williams, *An Atlas of the Cistercian Lands in Wales*). The bibliography of secondary sources stops at 1955 and a brief additional list indicates more recent scholarship such as by Donkin, Hodgson and Platt. This book is therefore principally of value for its assemblage of previously dispersed studies (including in *Y.A.J.*) than for pushing forward the new frontiers of settlement scholarship.

University of York *Lawrence Butler*

YORKSHIRE DALES. By ROBERT WHITE. 19 × 25.5 cm. Pp. 128. Illus. 89. Pls. 16 (in colour). Batsford/English Heritage, 1997. ISBN 0 7134 75617. Price: £15.99.

The Yorkshire Dales contains one of the best preserved historic landscapes in Europe. It is therefore appropriate that a book on its heritage should appear in the highly acclaimed series produced by English Heritage and Batsford. The volume covers a geographical area slightly larger than the boundary of the Yorkshire Dales National Park, of which the author is the Archaeological Conservation Officer. *Yorkshire Dales* forms part of the 'Landscapes through Time' series and is one of the last in a series of very successful popular accounts of archaeology. The text is arranged in chapters, which progress chronologically, starting with the geology and ending with buildings of the post-medieval period. The final chapter assesses future problems in preserving and conserving the Park's heritage. The book concludes with a Glossary, Places to Visit and Further Reading.

The volume is very handsomely produced, in keeping with its sister volumes, and is very readable. However, this veneer hides a number of serious weaknesses, all of which could have been avoided. On their own they would be worrying, but this book is the first general statement on a well-known landscape drawn to our attention by the late Arthur Raistrick and it is written by someone who has professional responsibility for the management of the archaeological heritage of the region. As such the volume will be regarded as an authoritative statement of current knowledge, embracing the results of a wide range of work being carried out by many people within the Park. One of the main problems is that the book does not accurately represent the current state of knowledge. In

some aspects it shows a misunderstanding of the evidence. One example is the map of assumed medieval townships (p. 64, Fig. 45), placed in the chapter dealing with the Middle Ages. This map shows mostly civil parishes of recent creation which are irrelevant for interpreting the medieval landscape.

The author's professional position ideally places him to integrate information held in the National Park's Sites and Monuments Record and to gain access to the mass of mostly unpublished material produced by many individuals and organisations working within the Park, much of it funded by the Authority. Sadly this integration has not happened. The discussion of field barns (pp. 75–77) is an example: by using a planning document as the basis for study the author overlooks the vernacular characteristics, the long continuity of use and the landscape setting. It is far better to rely on the two chapters on Dales barns given by Marie Hartley and Joan Ingleby in their *Dales Memories*, pp. 36–70.

The division of the chapters into a chronological framework also causes unforeseen difficulties. While the presentation of such a wide body of material is fraught with inherent problems, it would have given a firmer foundation for future study if major themes such as administrative units, settlements, field systems and communications had formed the subject of the chapters. This would have emphasised the modern view of looking at landscapes rather than perpetuating the traditional archaeological view. The problem is that we really do not know the date of much of what lies within the Dales landscapes. Much of the recent work has been built around chronological frameworks and diagnostic period plan types developed by Dr Raistrick over 50 years ago. This has created a number of problems, particularly those associated with the glut of settlement plan types loosely termed 'late prehistoric/Romano-British' and the imprecise application of the term 'co-axial field system'. This volume perpetuates philosophies of landscape studies that should now be recognised as part of the past progress in developing our understanding of the heritage of the Dales.

The importance of detailed field surveys is paramount for the interpretation of the historic landscape, with its wide ranging components from earthworks to standing structures. The wealth of preserved landscapes of all periods in the Yorkshire Dales makes the region ideal for understanding their development, many of the results so far obtained having national implications. Regrettably much of the recording being carried out in the Dales is insufficiently perceptive to obtain the fullest understanding, as can be illustrated by the recent survey of the second preceptory site at Penhill in Wensleydale, which is far more extensive and multi-phased than is indicated on the illustrated plan (p. 58, Fig. 40). It must be recognised that, although Dales landscapes are very well preserved and highly photogenic from the air, they do contain a mass of subtle detail which cannot be seen from the air or be revealed by the standard of survey work currently deemed acceptable by the Park authorities. The growing problem, which is of more than regional concern, is a lack of appropriate field experience by the recent surveyors and a similar lack of training in those whose task it is to monitor such surveys.

The volume also displays another disturbing but growing trend: the use of other people's unpublished work without permission. A book covering this breadth of subject will necessarily synthesise the work of others and this is duly acknowledged in the book. However, when most of the book is based on the unpublished work of others, often in substantial quantities, then it would have been courteous to seek prior permission. This was not done in a number of cases, leading to an imperfect volume. Had the author consulted those people mentioned in the Acknowledgements and asked others with long term experience of the Dales historic landscape to read relevant chapters in draft, then the volume would have been much improved and would have given a more accurate overview of current research.

As well as these general concerns, the volume contains an unusually high number of minor inaccuracies, many of which would have been picked up by readers. For instance, the sunken garden at Castle Bolton lies west of the castle and not east of it (p. 66). William's Hill at Middleham is a ring-work and not a motte and bailey (pp. 53, 121). Georgius Agricola's *De Re Metallica* was published in Switzerland, not Germany (p. 80). The misconception that buildings like Nappa Hall and Walburn Hall are fortified manor houses is perpetuated (pp. 67, 101). Nappa Hall lies 20 metres south of an overlooking scar, from which would-be attackers could lob boulders with their hands onto the top of the eastern tower! Walburn Hall in its present form is most unlikely to have been fortified (p. 67); its buildings are in urgent need of a modern survey to reveal what is clearly

a long and complicated development from the Middle Ages. Both the houses are surrounded by extensive earthworks, recently surveyed, which will allow the structural remains to be placed more confidently in their landscape setting and will avoid hasty conclusions about building dates (p. 101). The excavated Roman hypocaust at Middleham (p. 42) has been looked at unscientifically many times since it was first uncovered and recorded in 1881. However, detailed fieldwork now suggests that there is a strong Roman presence centred on Ulveshaw, but that the earthworks around the hypocaust do not indicate a conventional villa. Well preserved Roman landscapes are only now being recognised through total landscape survey, rather than by the traditional method of looking for diagnostically Roman features.

The author's professional position has enabled him to utilise much of the material collected for the Sites and Monuments Record, through his own encouragement and curatorship. However, many of the book's problems arise from the way in which the Yorkshire Dales National Park curates and manages the heritage of the park area. The volume may stand for many years to come as the only introductory statement for the general reader. Yet what is needed for the future is a programme of work, involving in a fully co-ordinated approach all those working on this unique landscape. It is hoped that the reception which this book receives will prompt the Park Authority to rethink the way in which it approaches its responsibilities to the historic heritage.

Batley *Stephen Moorhouse*

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